

KPPD BASE-LINE
1st HALF, 1994



Institute of Paper Science and Technology

CONTINUOUS BASE-LINE STUDY
(MULTI-WALL BAG PAPER DATA FOR JAN-FEB, MAR-APR, MAY-JUN 1994)

Project 3710

A Progress Report

to

THE KRAFT AND PACKAGING PAPERS DIVISION

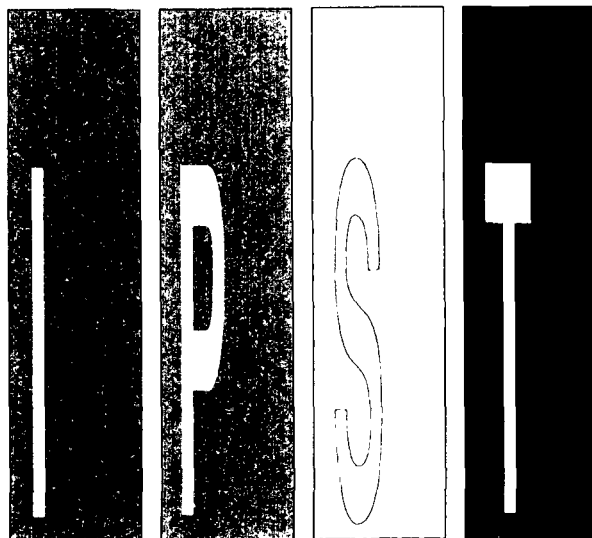
OF THE

AMERICAN FOREST AND PAPER ASSOCIATION

Project 3710

Report Eight

September 1, 1994



Atlanta, Georgia

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- to sustain an international position of leadership in dynamic scientific research which is participated in by both students and faculty and which is focused on areas of significance to the pulp and paper industry; and
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THE INSTITUTE OF PAPER SCIENCE AND TECHNOLOGY

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September 1, 1994

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Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

SUMMARY

Flat

Moist @ reel
Percent

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	6.7	6.6	6.5
	Min	4.8	4.7	4.9
	Avg	5.5 (9)	5.6 (10)	5.4 (10)
	Stddev	.7	.7	.5
50	Max	6.6	6.6	6.6
	Min	4.8	4.6	4.8
	Avg	5.7 (13)	5.7 (15)	5.6 (13)
	Stddev	.6	.7	.6
60	Max	7.0	6.8	6.7
	Min	4.8	4.4	4.8
	Avg	5.8 (13)	5.8 (12)	5.8 (10)
	Stddev	.8	.8	.7

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

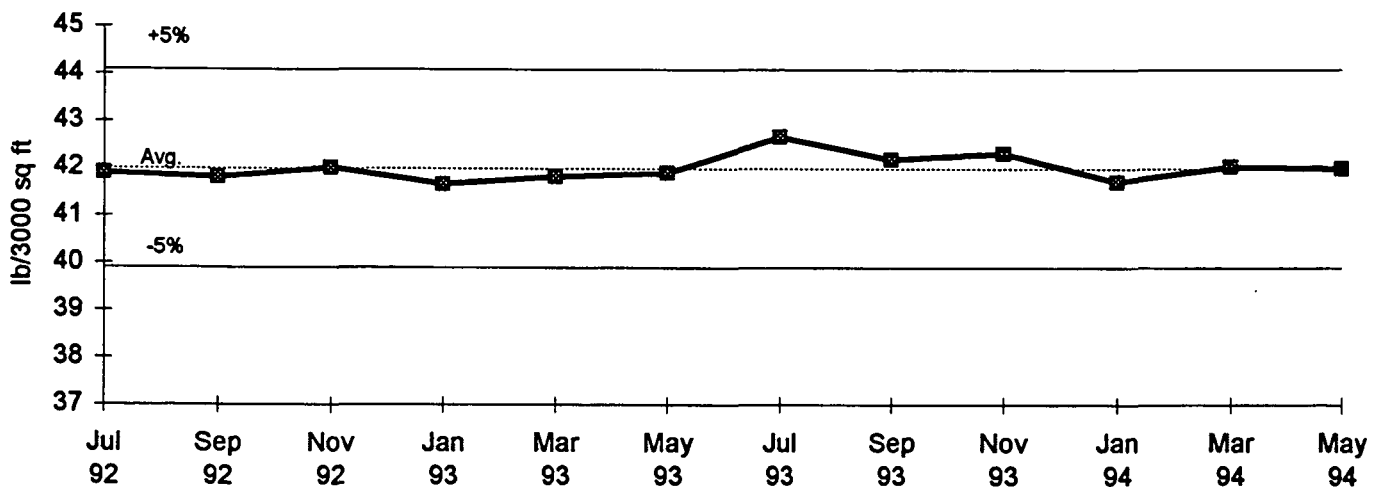
SUMMARY

Flat

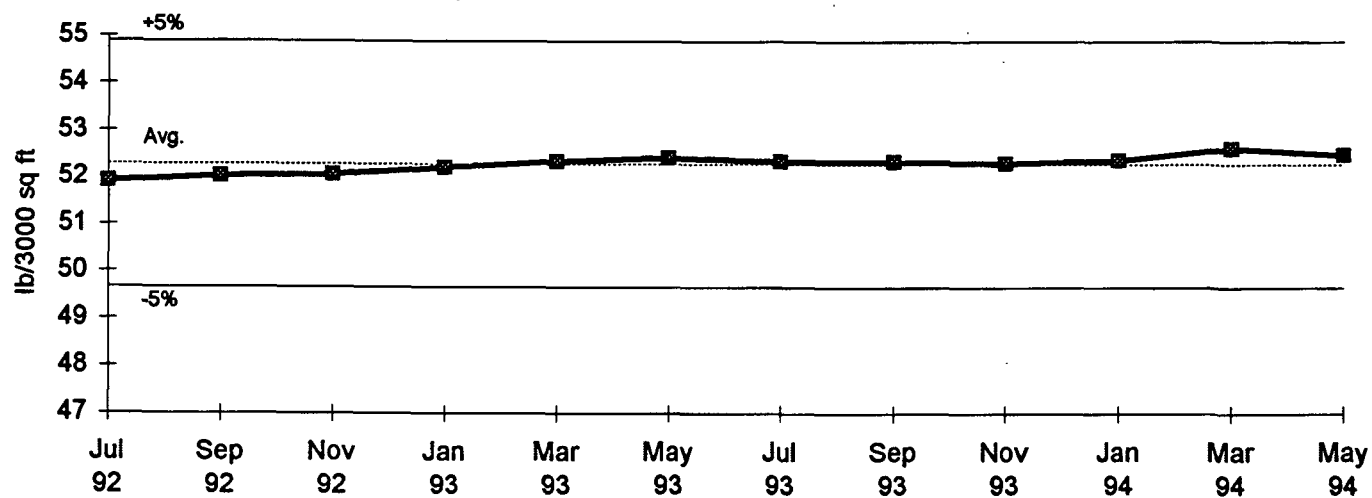
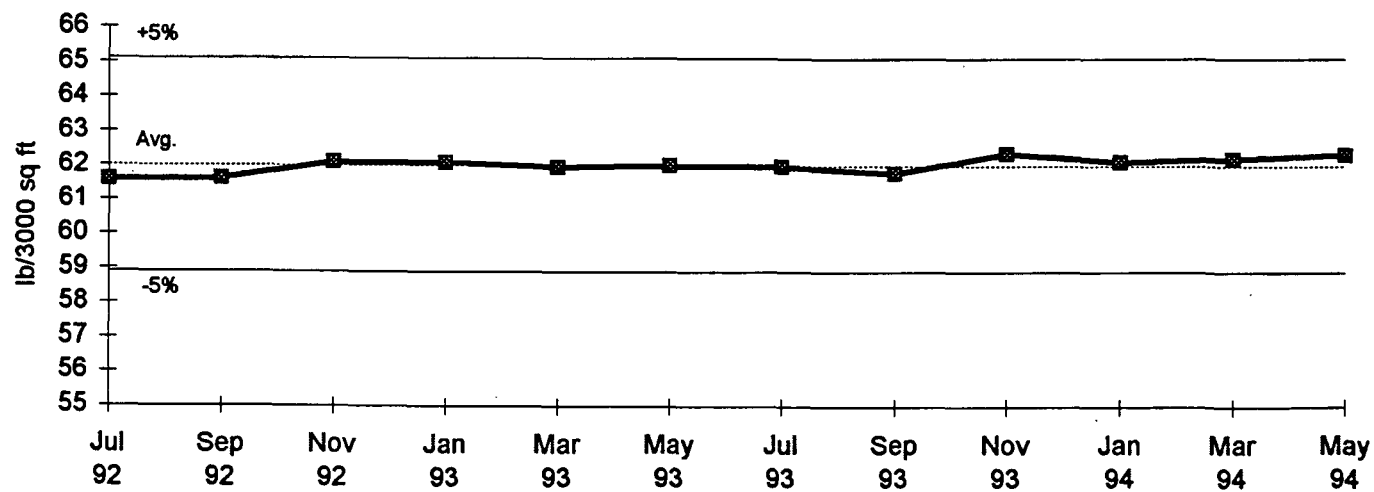
Adjusted Basis Weight *A
Lbs/M Sq Ft

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	43.0	44.2	44.4
	Min	40.5	40.5	40.8
	Avg	41.7 (9)	42.0 (10)	42.0 (10)
	Stddev	.7	1.1	1.2
50	Max	53.8	55.8	54.1
	Min	51.0	50.7	50.5
	Avg	52.4 (12)	52.6 (15)	52.5 (13)
	Stddev	1.0	1.3	1.2
60	Max	63.8	64.0	63.7
	Min	60.3	60.1	59.9
	Avg	62.1 (13)	62.2 (12)	62.3 (10)
	Stddev	1.1	1.2	1.3

40# Flat Adjusted Basis Weight *A



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().
Note A is given in the appendix

50# Flat Adjusted Basis Weight *A**60# Flat Adjusted Basis Weight *A**

Note A is given in the appendix

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

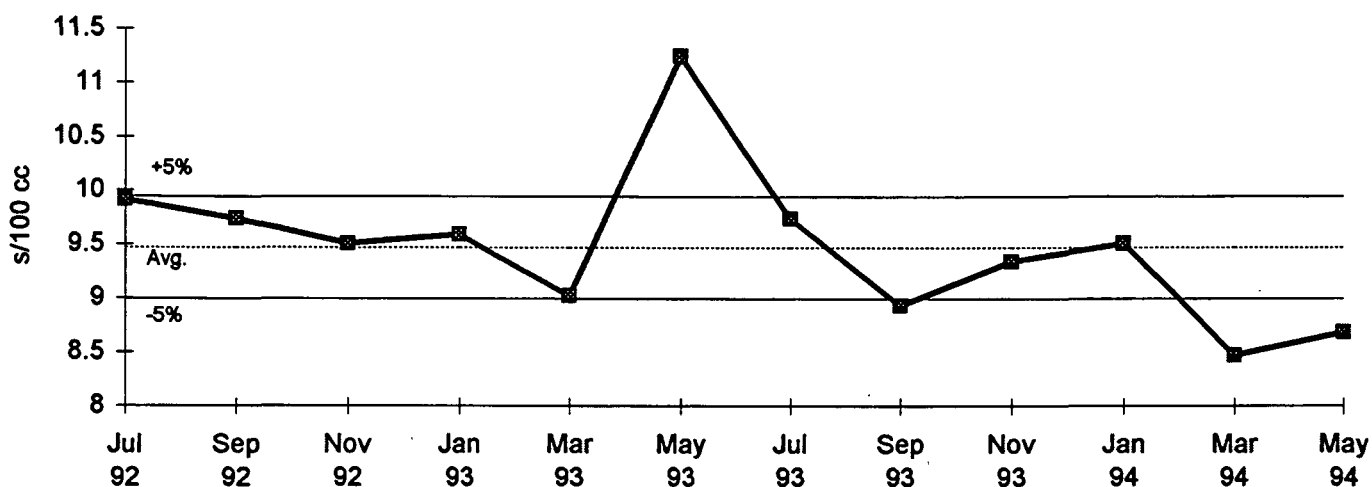
SUMMARY

Flat

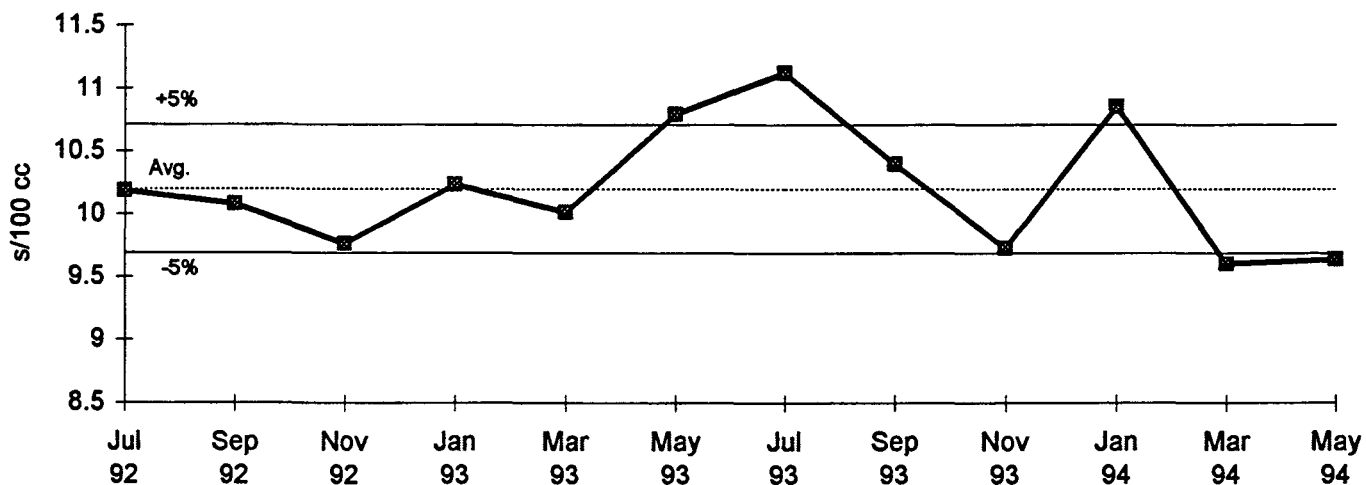
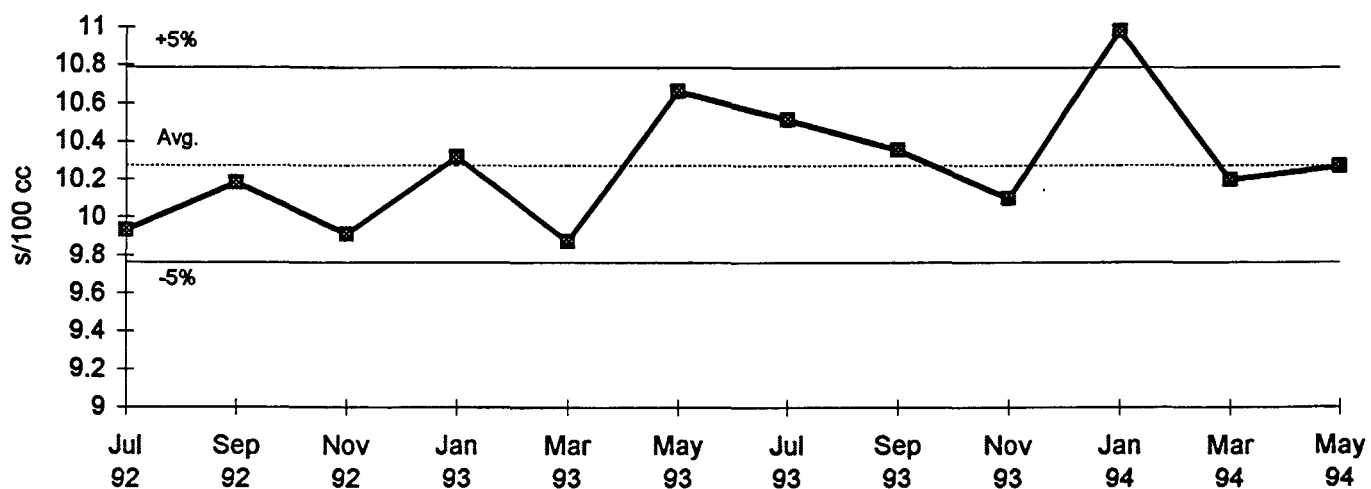
Porosity
s/100 cc

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	14.0	13.0	14.0
	Min	4.0	2.0	4.0
	Avg	9.5 (9)	8.5 (10)	8.7 (10)
	Stddev	3.4	3.5	3.5
50	Max	15.5	19.7	18.3
	Min	5.0	3.0	4.0
	Avg	10.9 (13)	9.6 (15)	9.6 (13)
	Stddev	3.7	4.3	4.8
60	Max	16.7	15.0	16.0
	Min	5.5	4.0	5.0
	Avg	11.0 (13)	10.2 (12)	10.3 (10)
	Stddev	3.4	3.5	3.8

40# Flat Porosity



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Porosity**60# Flat Porosity**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

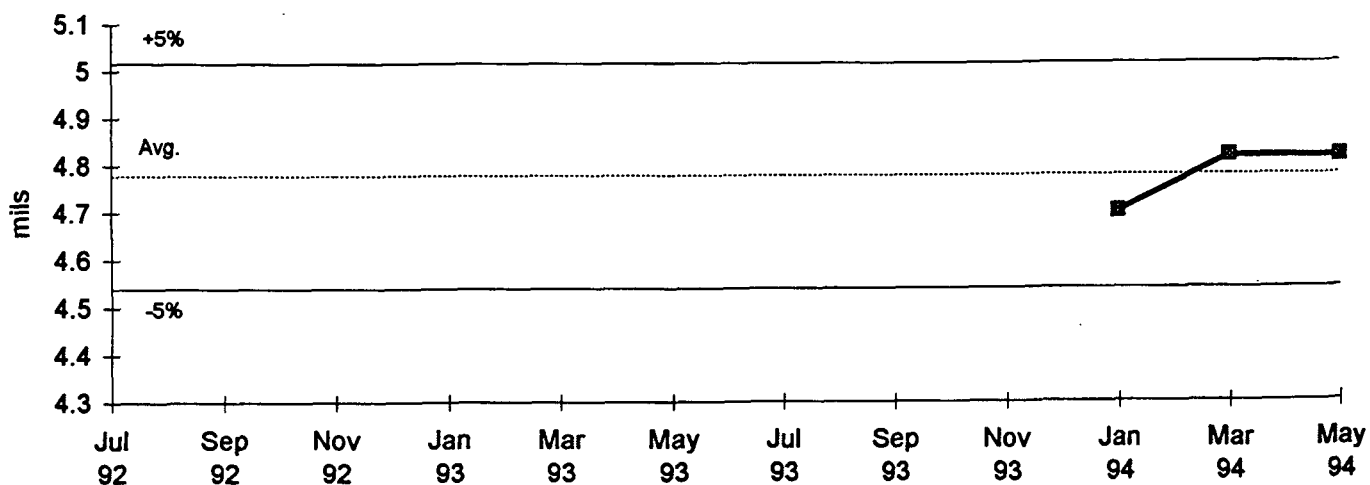
SUMMARY

Flat

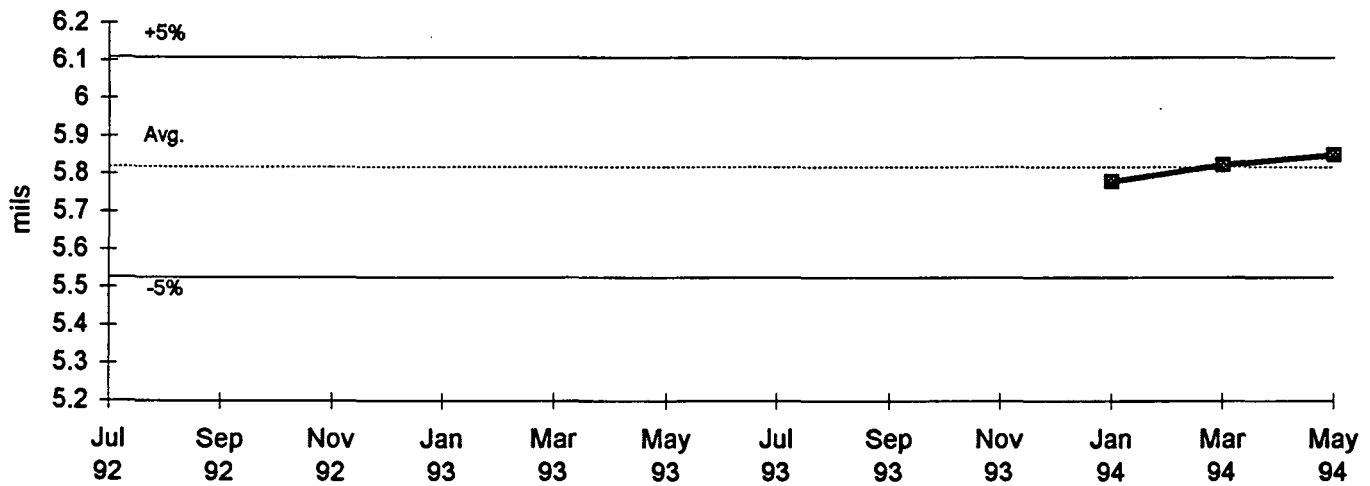
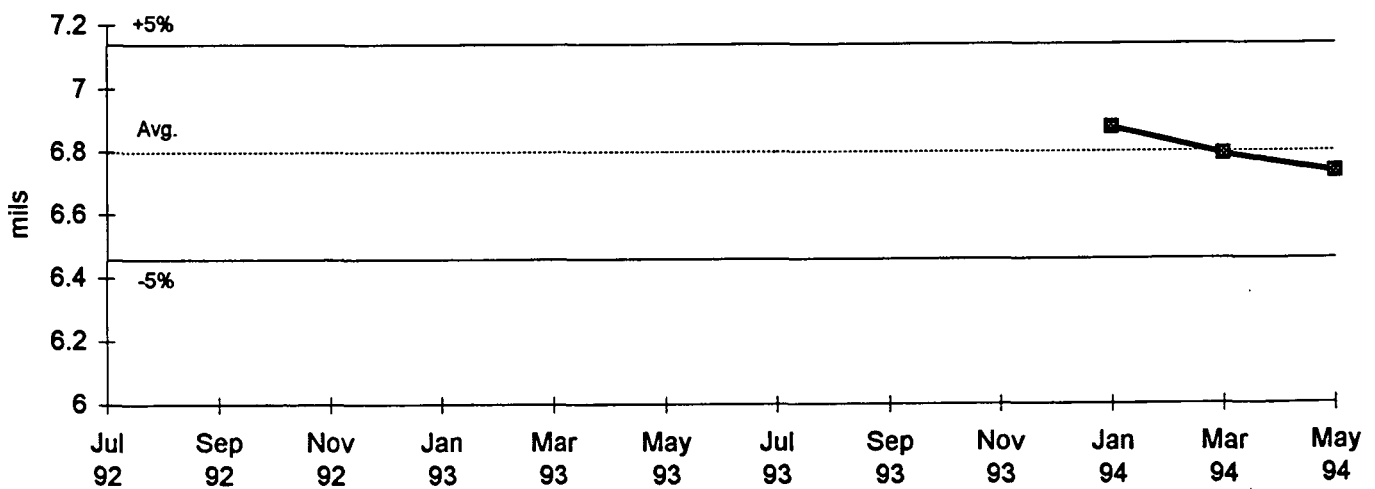
Thickness
mils

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	5.5	5.5	5.3
	Min	4.1	4.1	3.9
	Avg	4.7 (8)	4.8 (9)	4.8 (9)
	Stddev	.4	.4	.5
50	Max	6.5	6.8	6.7
	Min	5.1	5.2	5.1
	Avg	5.8 (11)	5.8 (13)	5.9 (11)
	Stddev	.4	.4	.5
60	Max	7.9	8.0	7.2
	Min	6.2	6.2	6.2
	Avg	6.9 (9)	6.8 (10)	6.7 (8)
	Stddev	.6	.6	.4

40# Flat Thickness



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Thickness**60# Flat Thickness**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

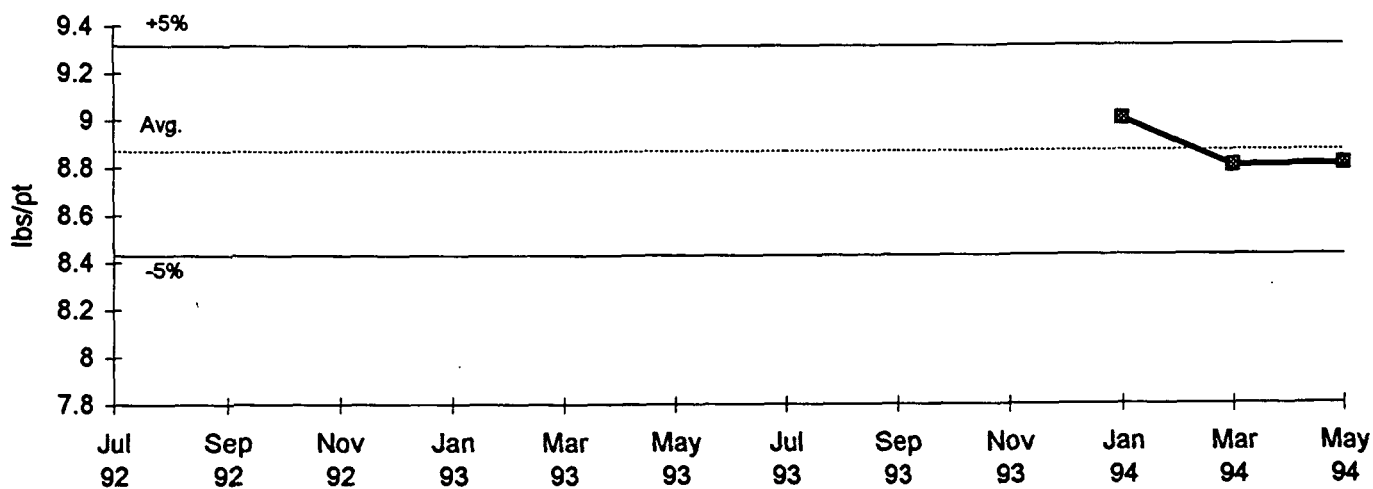
SUMMARY

Flat

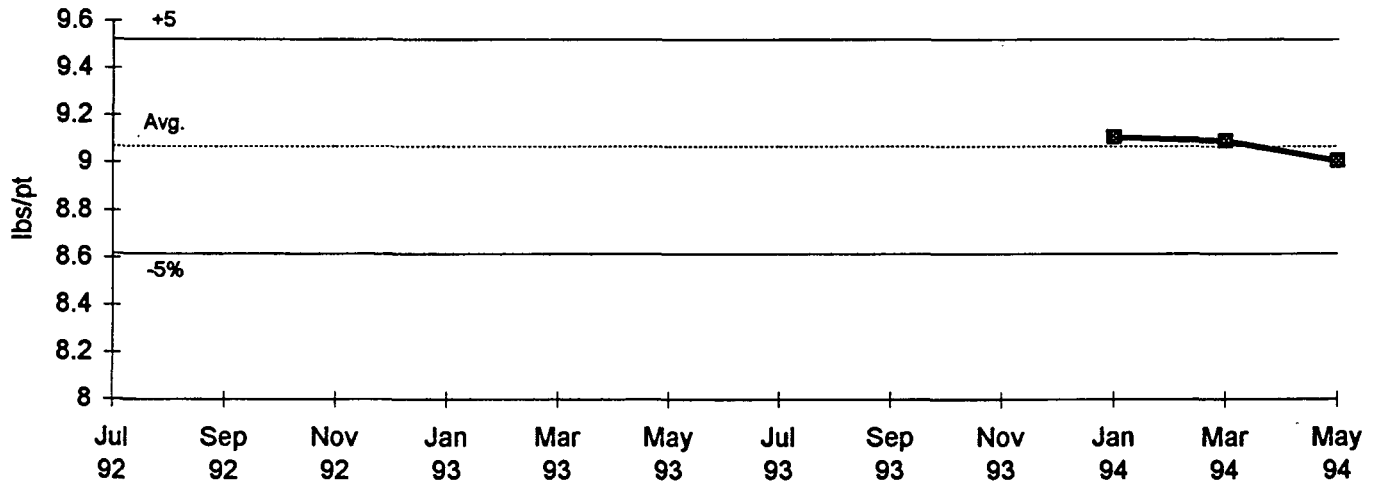
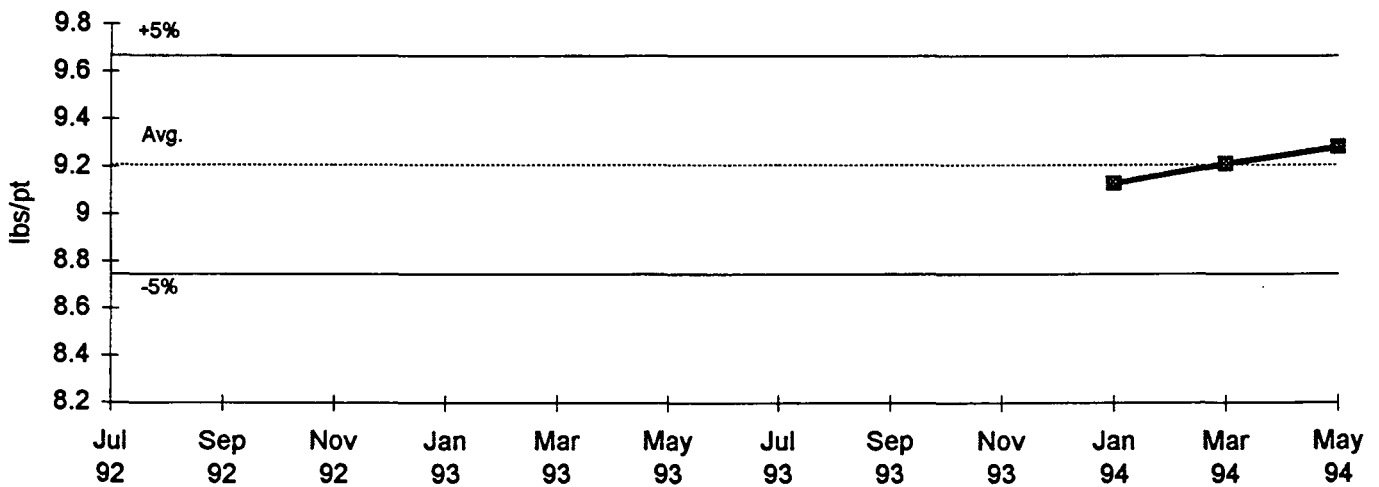
Apparent Density
lbs/pt

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	9.9	9.9	10.5
	Min	7.7	7.7	8.0
	Avg	9.0 (8)	8.8 (9)	8.8 (9)
	Stddev	.7	.7	.9
50	Max	10.0	9.9	9.9
	Min	8.0	7.7	7.8
	Avg	9.1 (10)	9.1 (13)	9.0 (11)
	Stddev	.6	.6	.6
60	Max	10.1	10.1	9.9
	Min	7.8	7.8	8.8
	Avg	9.1 (9)	9.2 (10)	9.3 (8)
	Stddev	.7	.7	.4

40# Flat Apparent Density



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Apparent Density**60# Flat Apparent Density**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

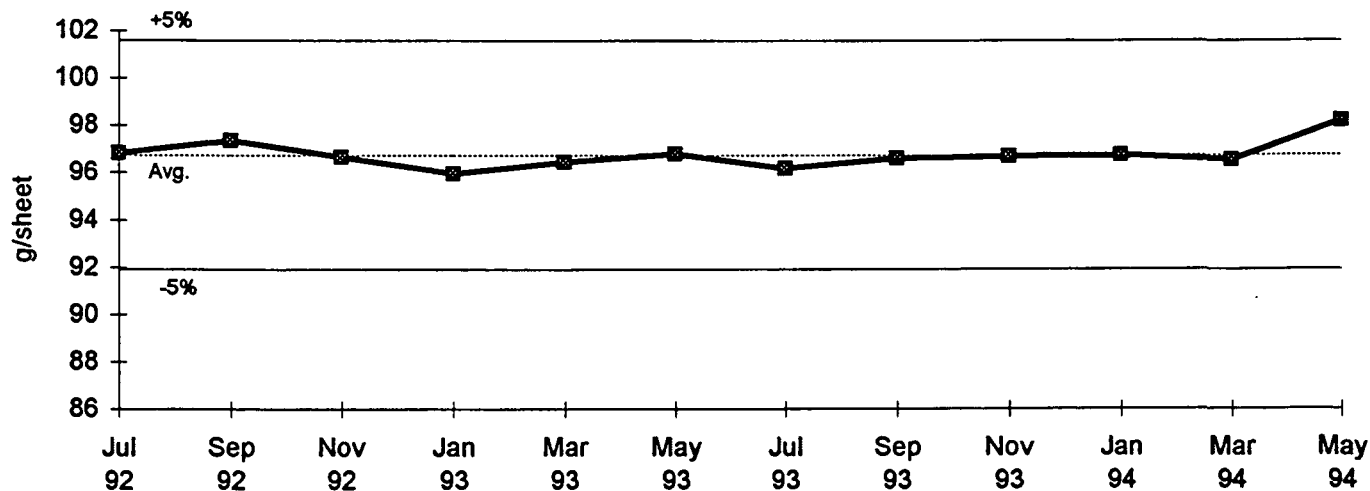
SUMMARY

Flat

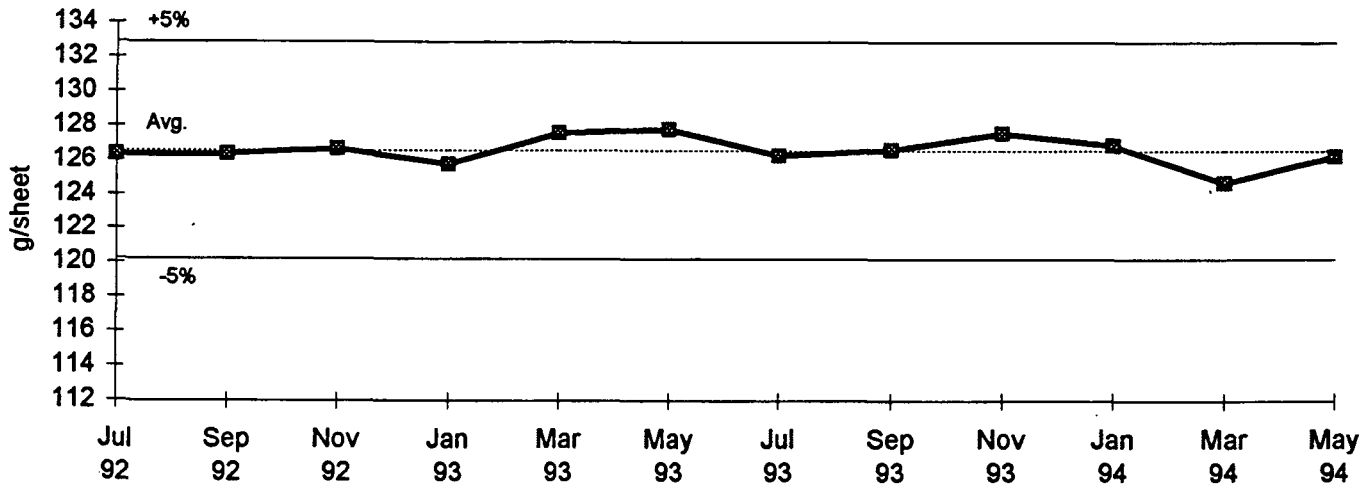
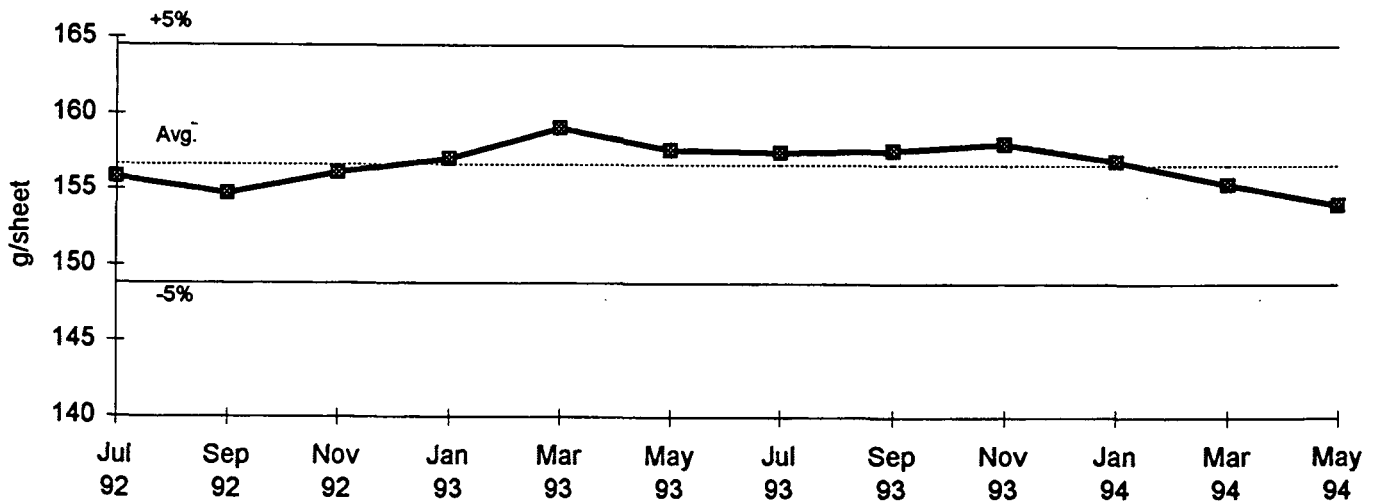
Adjusted MD Tear
g/sheet

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	110.2	105.1	109.7
	Min	87.5	87.5	87.0
	Avg	96.7 (9)	96.5 (10)	98.2 (10)
	Stddev	8.0	6.3	6.6
50	Max	143.9	139.7	142.0
	Min	117.7	112.9	115.0
	Avg	126.9 (13)	124.7 (15)	126.2 (13)
	Stddev	8.3	7.9	7.0
60	Max	174.5	175.8	167.8
	Min	145.2	141.8	143.1
	Avg	156.9 (13)	155.4 (12)	154.0 (10)
	Stddev	9.2	9.4	8.3

40# Flat Adjusted MD Tear



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Adjusted MD Tear**60# Flat Adjusted MD Tear**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

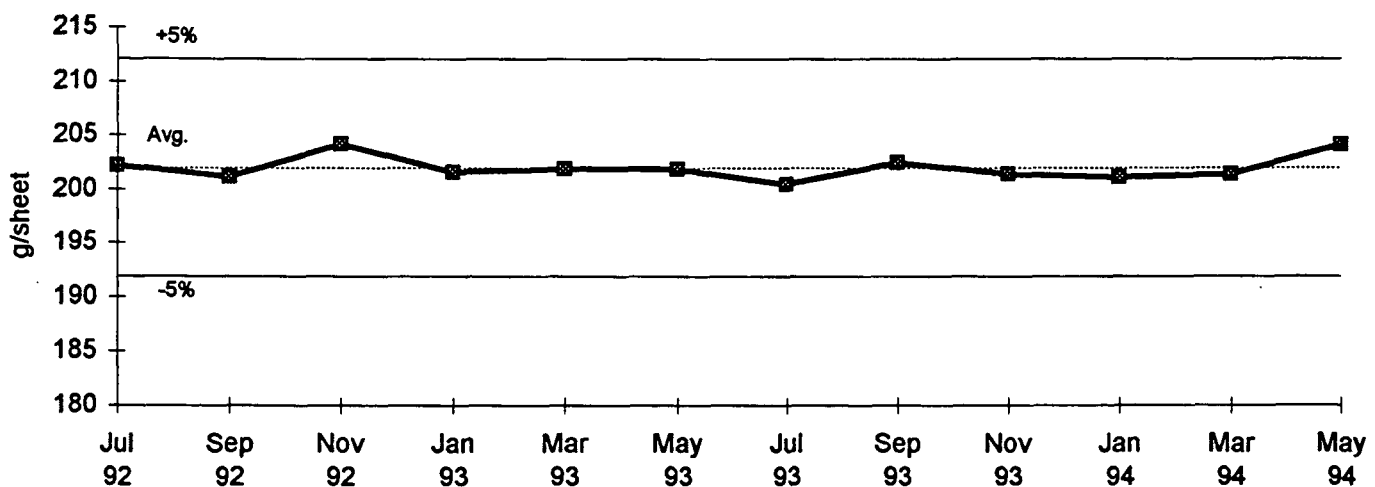
SUMMARY

Flat

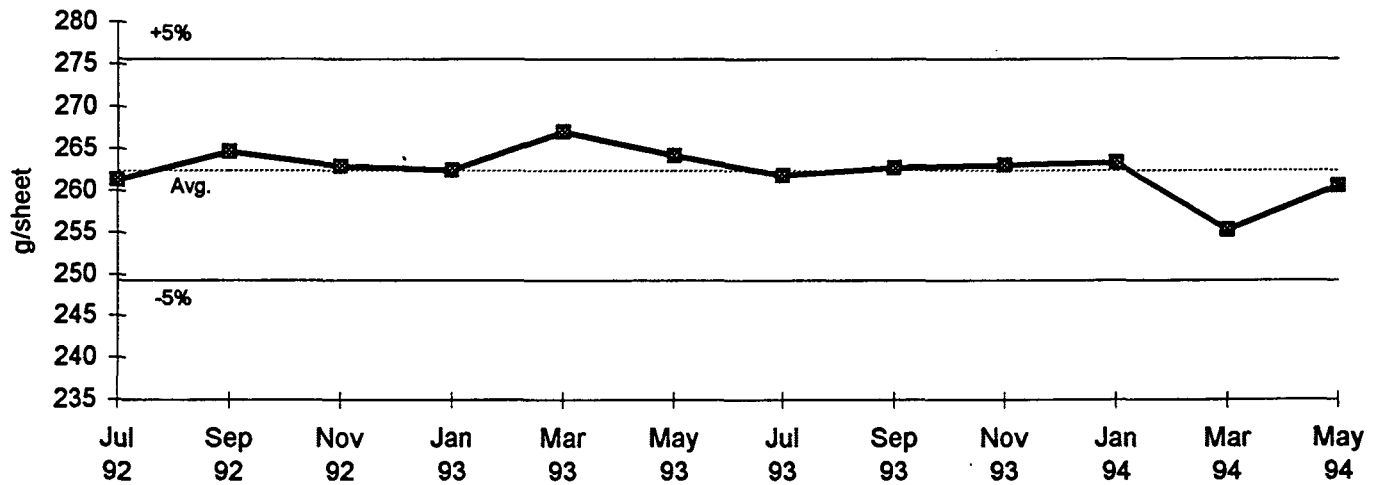
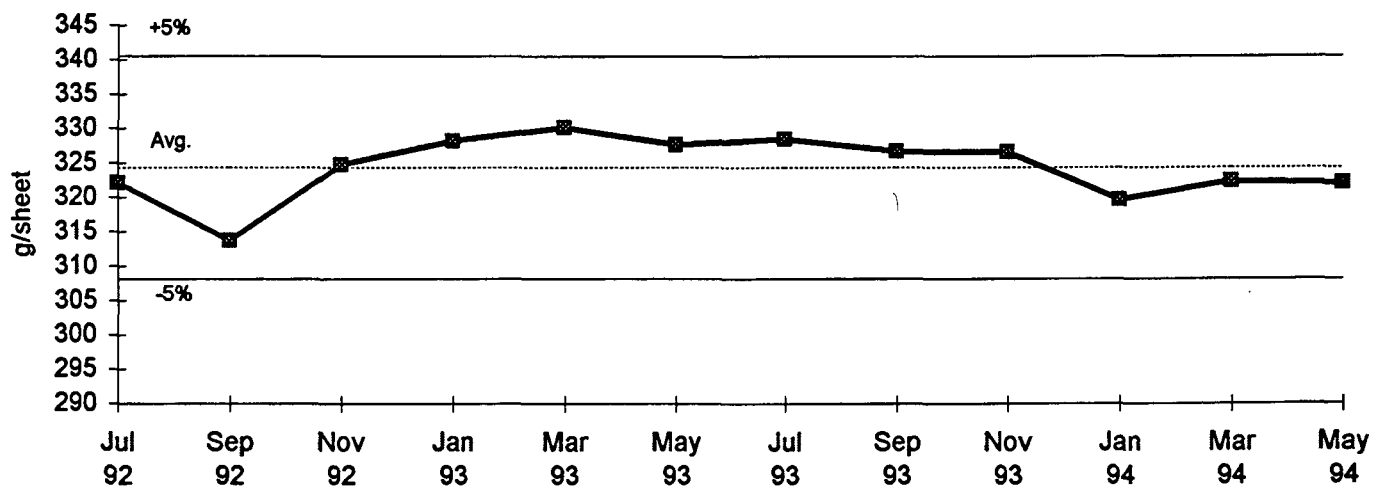
Adjusted Total Tear
g/sheet

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	227.4	217.6	225.3
	Min	183.0	188.7	187.0
	Avg	201.1 (9)	201.4 (10)	204.1 (10)
	Stddev	14.7	9.4	10.6
50	Max	293.8	284.2	291.0
	Min	244.5	206.8	242.7
	Avg	263.3 (13)	255.3 (15)	260.5 (13)
	Stddev	14.8	18.7	12.2
60	Max	348.3	351.3	350.5
	Min	291.0	302.4	301.8
	Avg	319.7 (13)	322.4 (12)	322.0 (10)
	Stddev	16.5	15.4	15.0

40# Flat Adjusted Total Tear



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Adjusted Total Tear**60# Flat Adjusted Total Tear**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

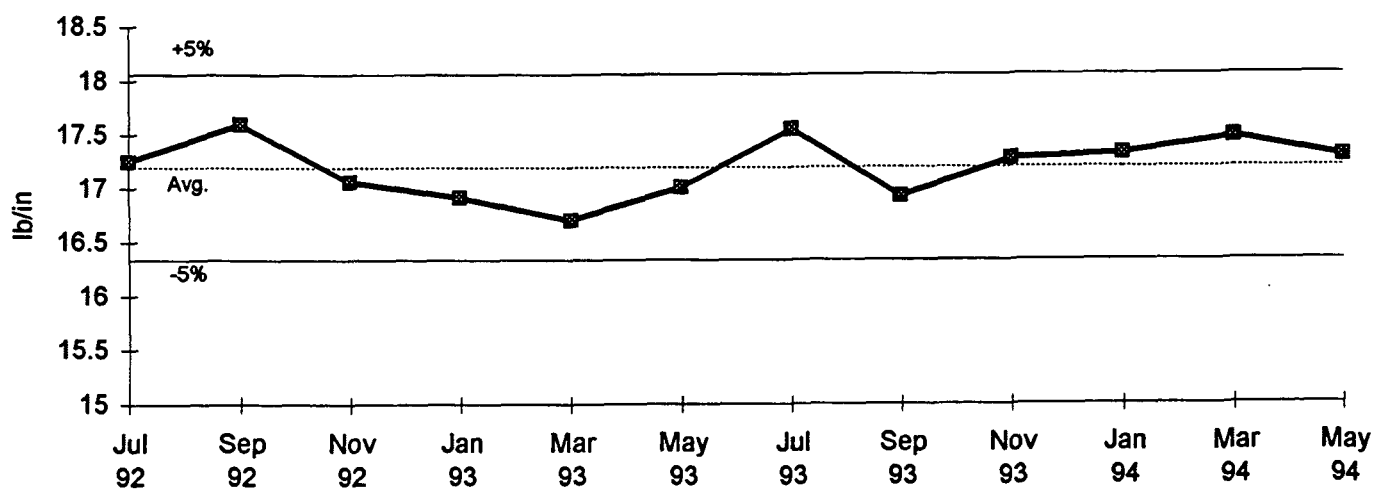
SUMMARY

Flat

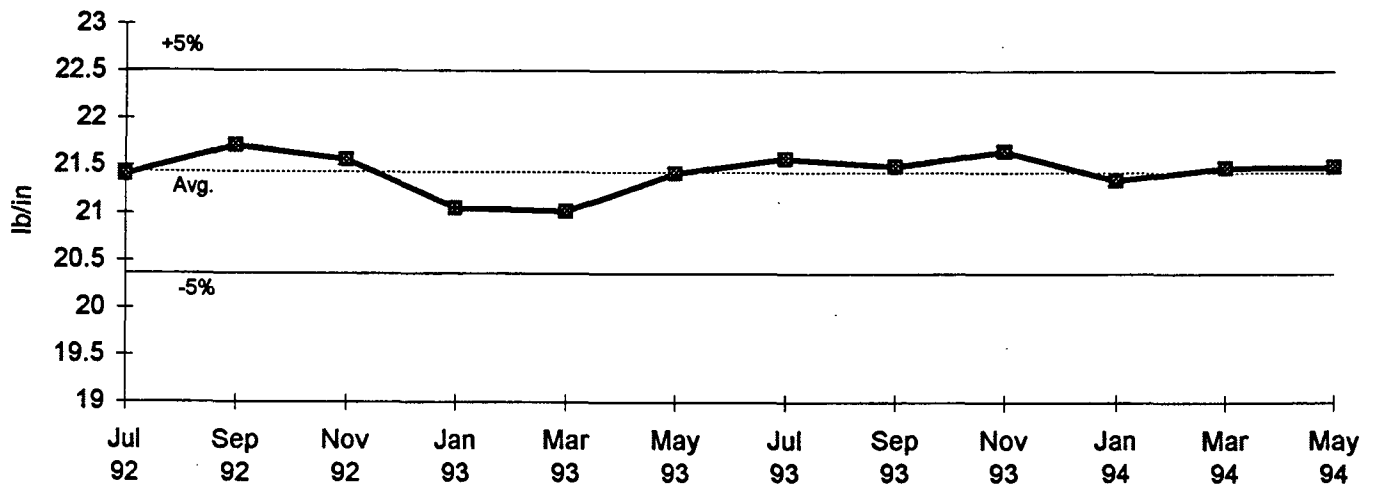
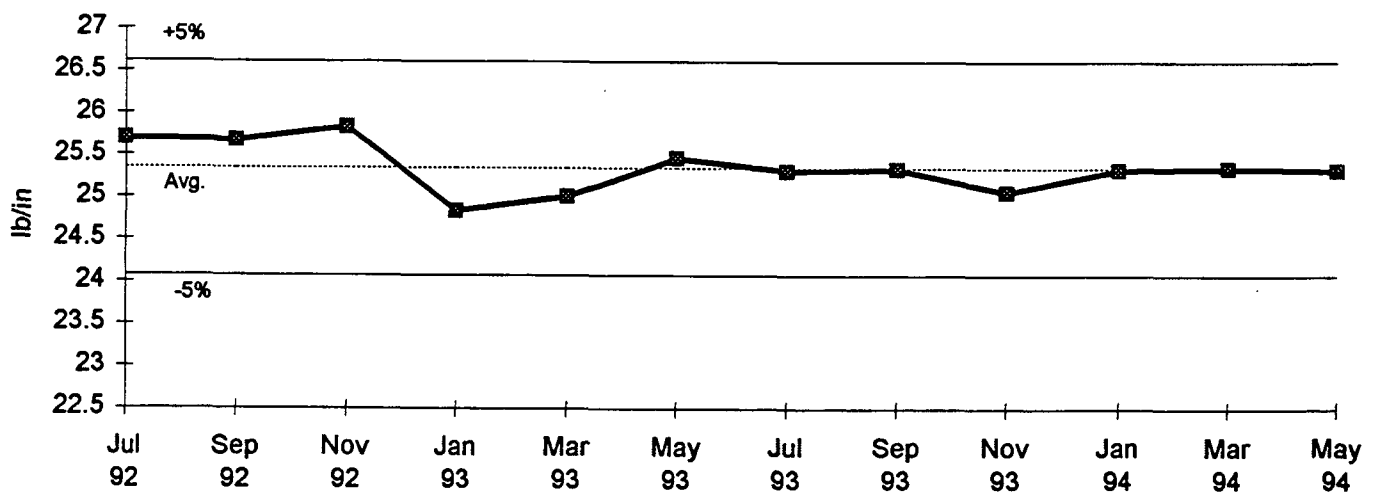
Adjusted CD Tensile
lb/in

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	19.4	19.7	20.3
	Min	15.2	15.0	15.1
	Avg	17.3 (9)	17.5 (10)	17.3 (10)
	Stddev	1.2	1.3	1.5
50	Max	23.7	24.5	24.9
	Min	19.3	18.7	18.5
	Avg	21.4 (13)	21.5 (15)	21.5 (13)
	Stddev	1.3	1.6	1.6
60	Max	27.5	28.5	29.1
	Min	22.6	23.6	23.6
	Avg	25.3 (13)	25.4 (12)	25.3 (10)
	Stddev	1.4	1.7	1.6

40# Flat Adjusted CD Tensile



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Adjusted CD Tensile**60# Flat Adjusted CD Tensile**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

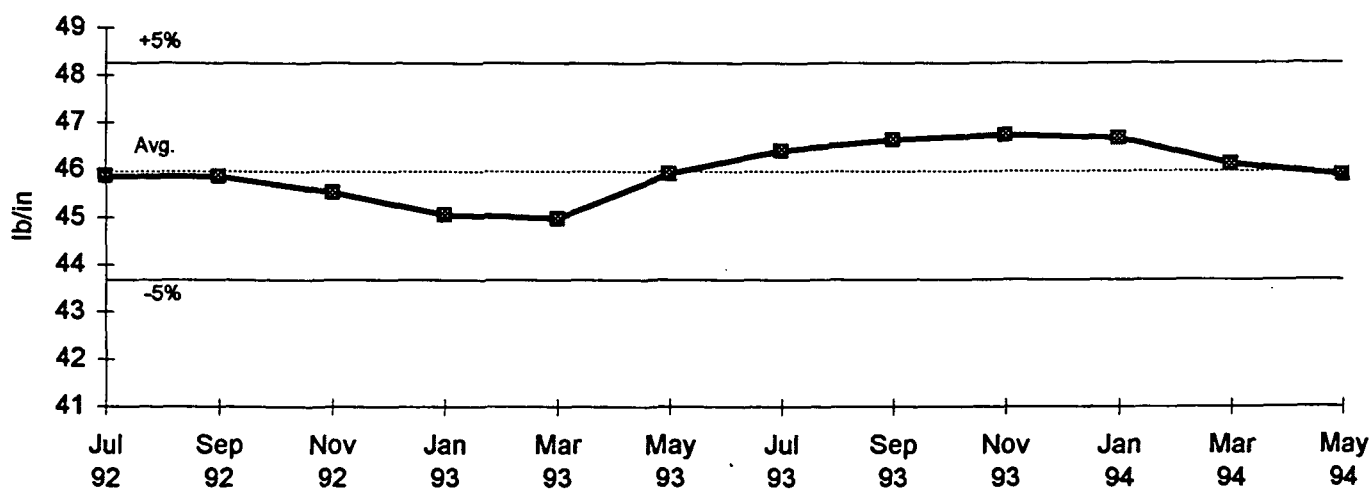
SUMMARY

Flat

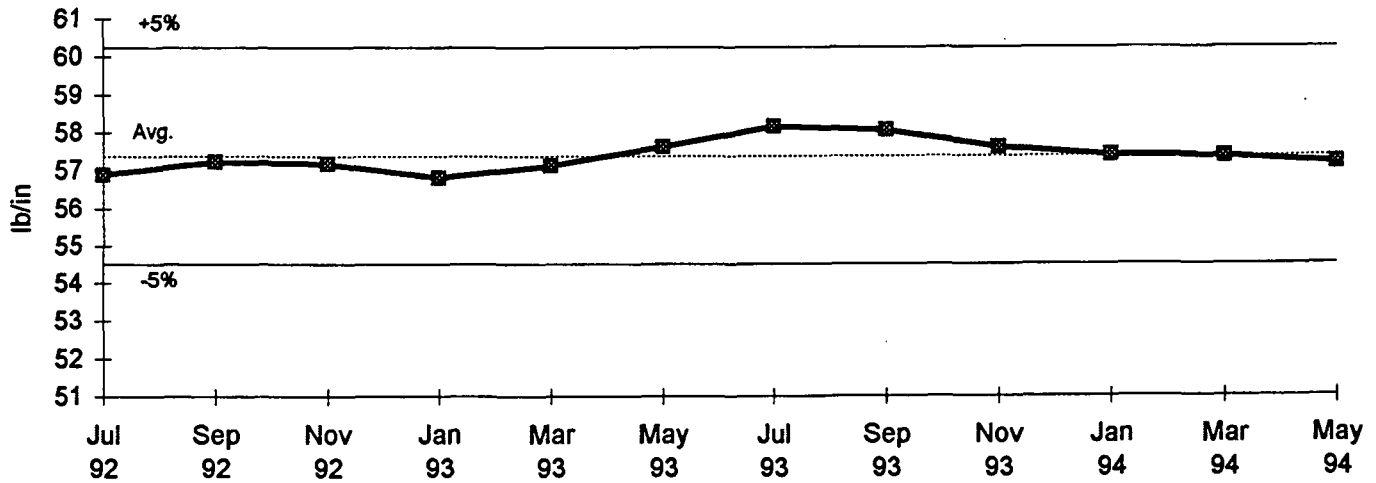
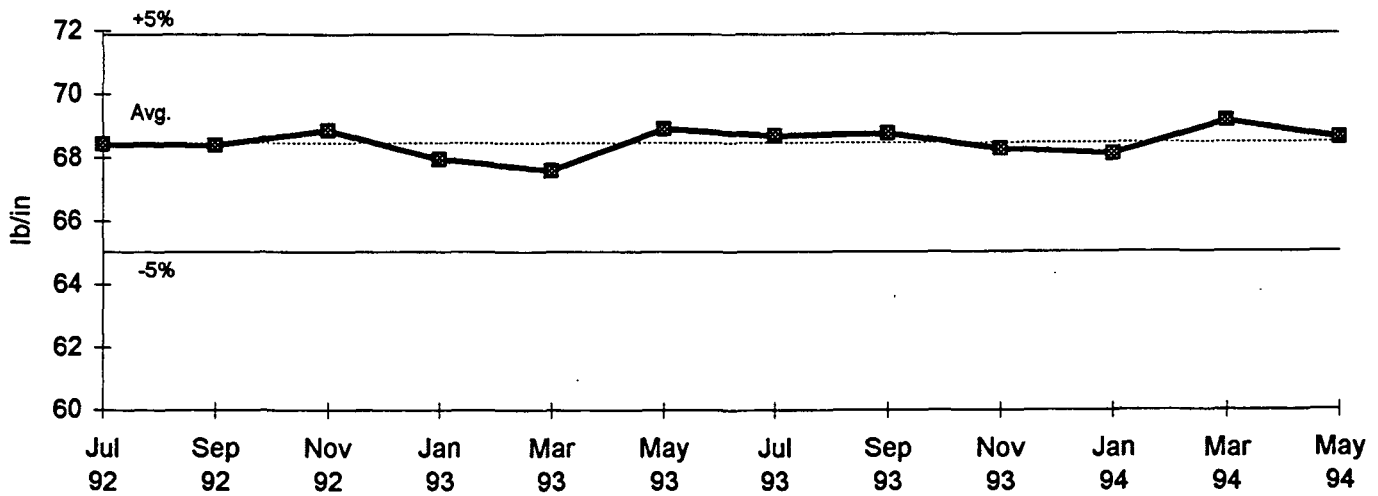
Adjusted Total Tensile
lb/in

		JAN-FEB	MAR-APR	MAY-JUN
40	Max	54.1	50.8	53.4
	Min	43.7	42.4	42.9
	Avg	46.7 (9)	46.1 (10)	45.9 (10)
	Stddev	3.2	3.0	3.5
50	Max	61.7	62.2	61.4
	Min	53.3	52.8	52.9
	Avg	57.4 (13)	57.4 (15)	57.2 (13)
	Stddev	2.7	2.9	2.4
60	Max	75.4	73.5	74.0
	Min	61.2	64.9	63.7
	Avg	68.1 (13)	69.1 (12)	68.6 (10)
	Stddev	4.3	2.9	3.0

40# Flat Adjusted Total Tensile



Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Flat Adjusted Total Tensile**60# Flat Adjusted Total Tensile**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

SUMMARY

Extensible

Moist @ reel
Percent

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	6.4	6.8	6.4
	Min	3.8	4.1	4.1
	Avg	4.4 (5)	5.0 (4)	4.9 (4)
	Stddev	1.1	1.2	1.1
<hr/>				
60	Max	6.5	6.6	6.7
	Min	4.0	4.3	3.9
	Avg	4.7 (4)	5.0 (4)	4.8 (4)
	Stddev	1.1	1.1	1.3

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

SUMMARY

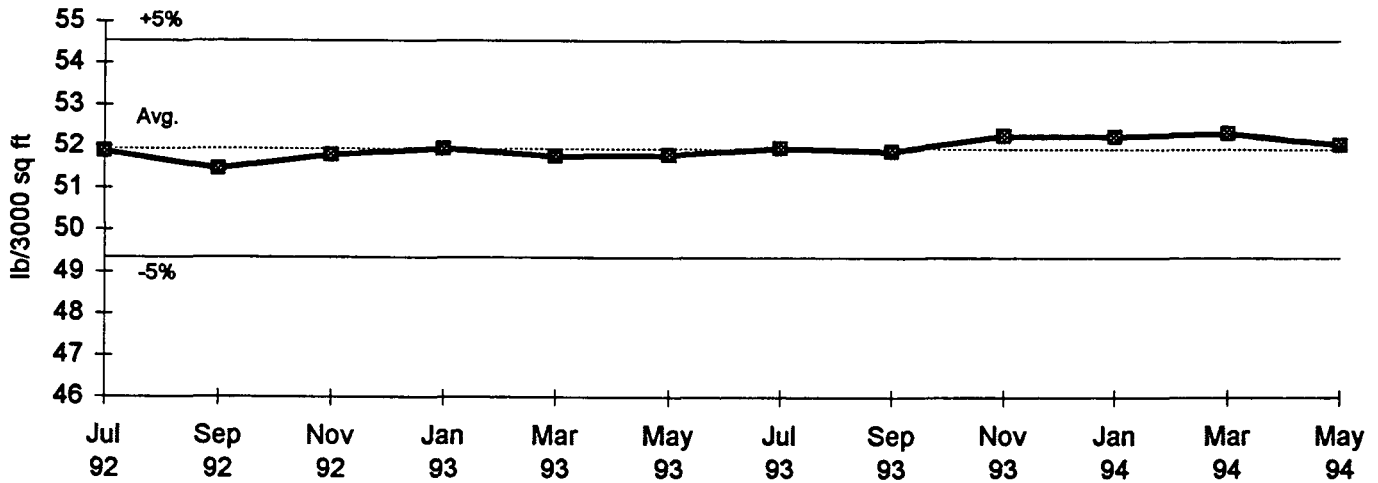
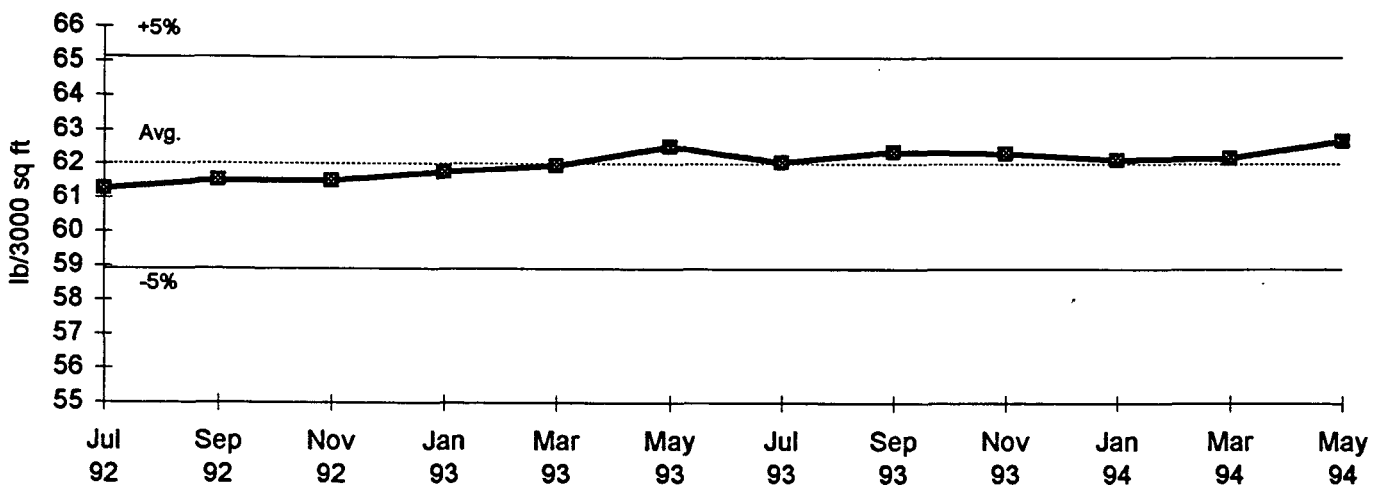
Extensible

Adjusted Basis Weight *A
Lbs/M Sq Ft

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	53.7	53.9	53.1
	Min	50.9	50.8	50.6
	Avg	52.3 (5)	52.3 (4)	52.1 (4)
	Stddev	1.3	1.4	1.1

60	Max	63.7	64.4	63.4
	Min	60.4	60.3	60.2
	Avg	62.1 (4)	62.2 (4)	62.7 (4)
	Stddev	1.6	1.9	1.5

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().
Note A is given in the appendix

50# Extensible Adjusted Basis Weight *A**60# Extensible Adjusted Basis Weight *A**

Note A is given in the appendix

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

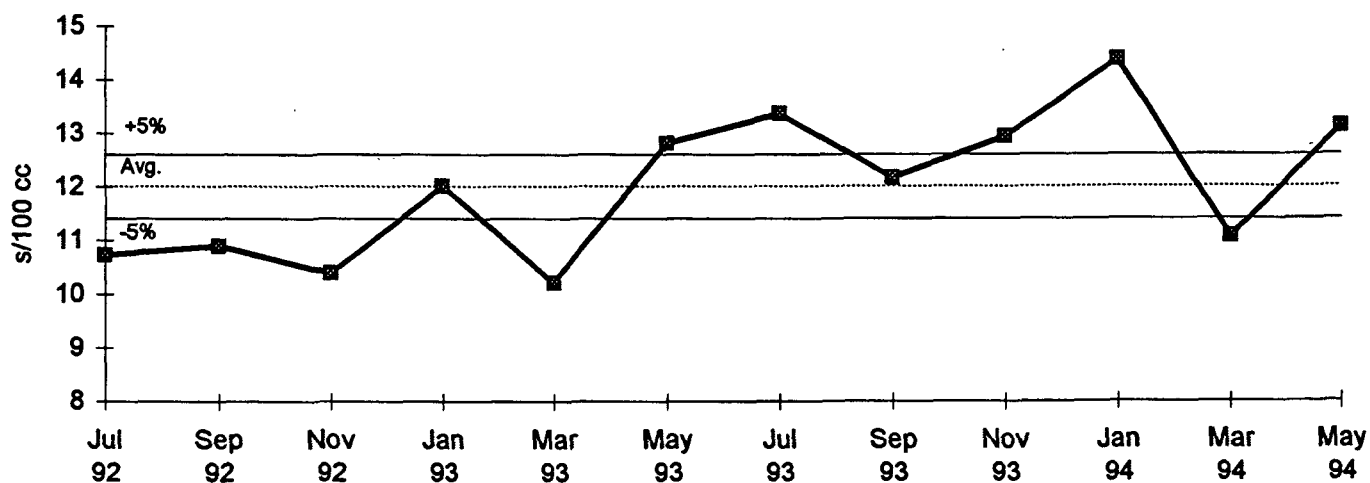
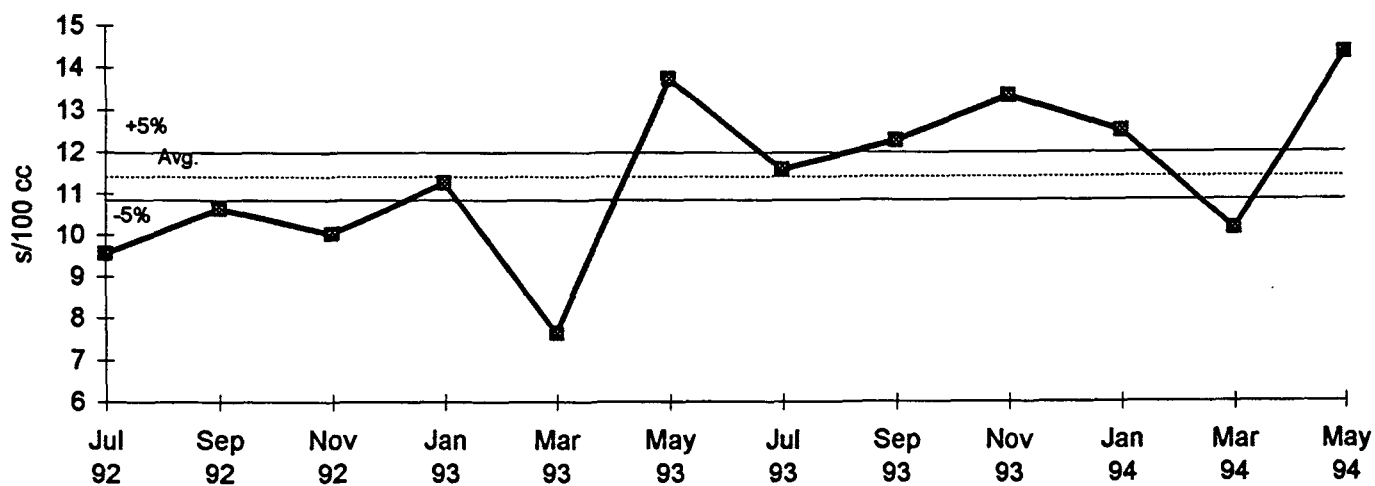
SUMMARY

Extensible

Porosity
s/100 cc

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	26.9	16.0	18.0
	Min	3.5	3.0	3.0
	Avg	14.4 (5)	11.1 (4)	13.1 (4)
	Stddev	9.1	6.0	6.8
<hr/>				
60	Max	24.5	15.0	16.9
	Min	3.5	3.5	3.0
	Avg	12.5 (3)	10.1 (4)	14.3 (4)
	Stddev	10.5	5.0	6.6

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Porosity**60# Extensible Porosity**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

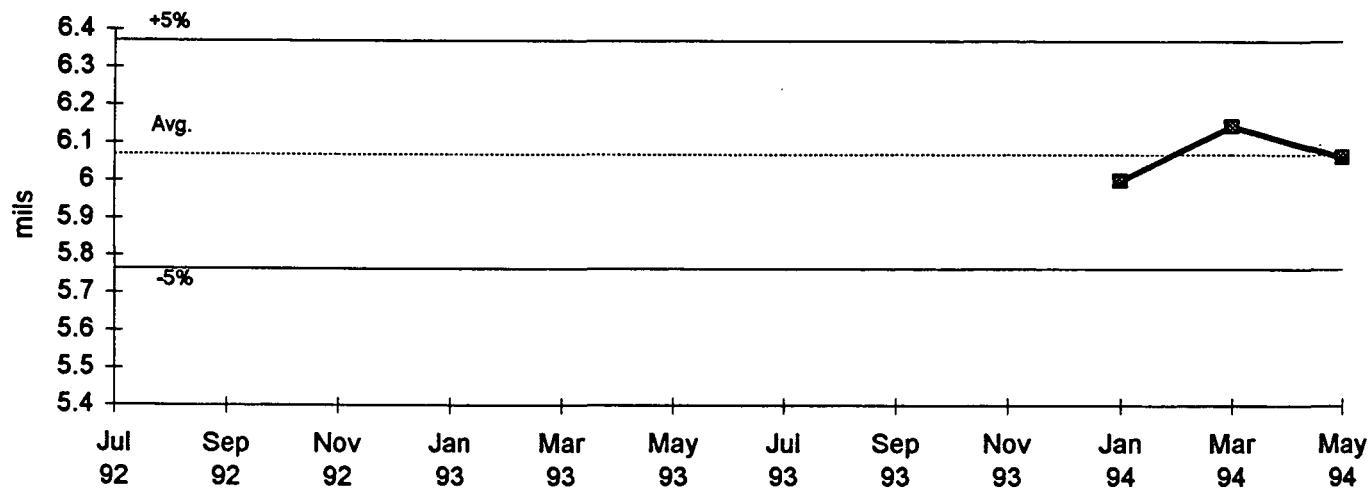
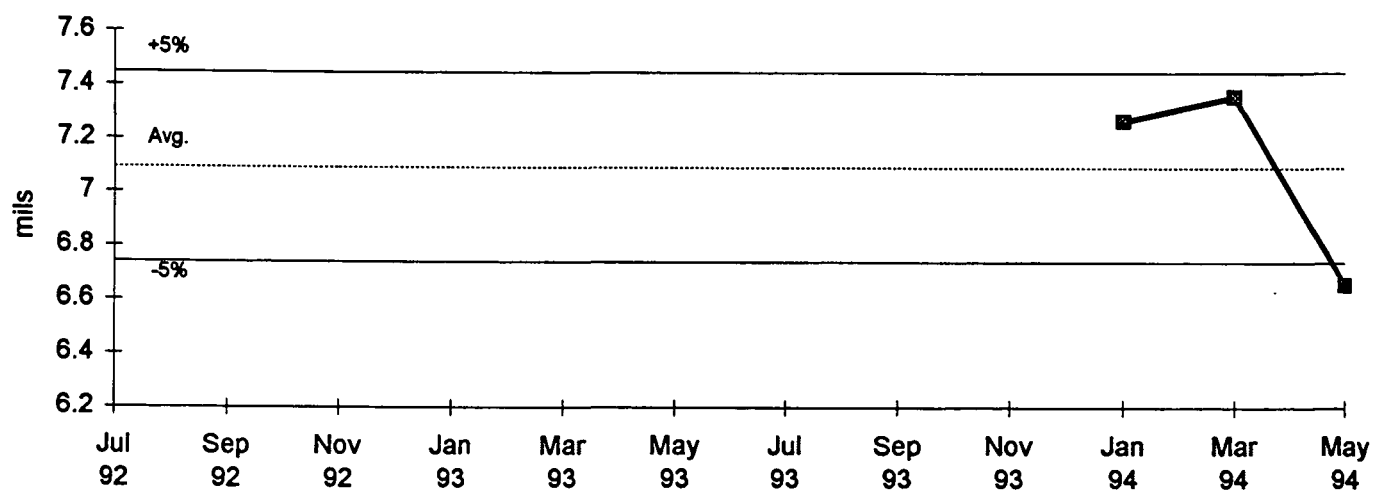
SUMMARY

Extensible

Thickness
mils

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	8.4	8.2	8.3
	Min	5.0	5.0	5.0
	Avg	6.0 (4)	6.1 (4)	6.1 (4)
	Stddev	1.6	1.5	1.5
<hr/>				
60	Max	9.4	9.9	9.5
	Min	5.9	6.1	5.9
	Avg	7.3 (3)	7.4 (4)	6.7 (4)
	Stddev	1.9	1.8	1.7

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Thickness**60# Extensible Thickness**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

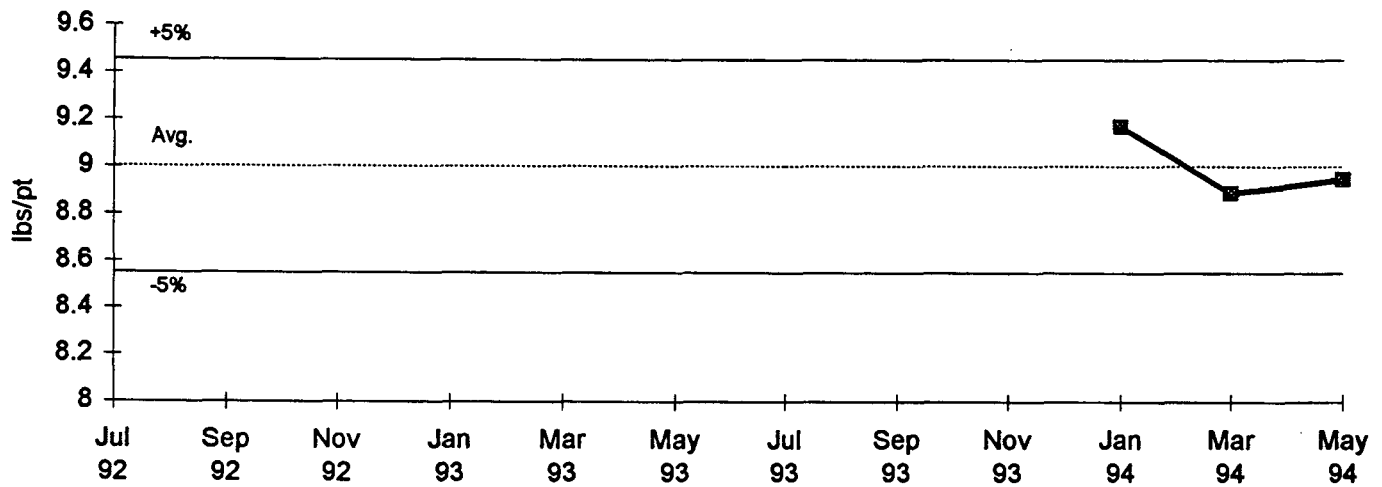
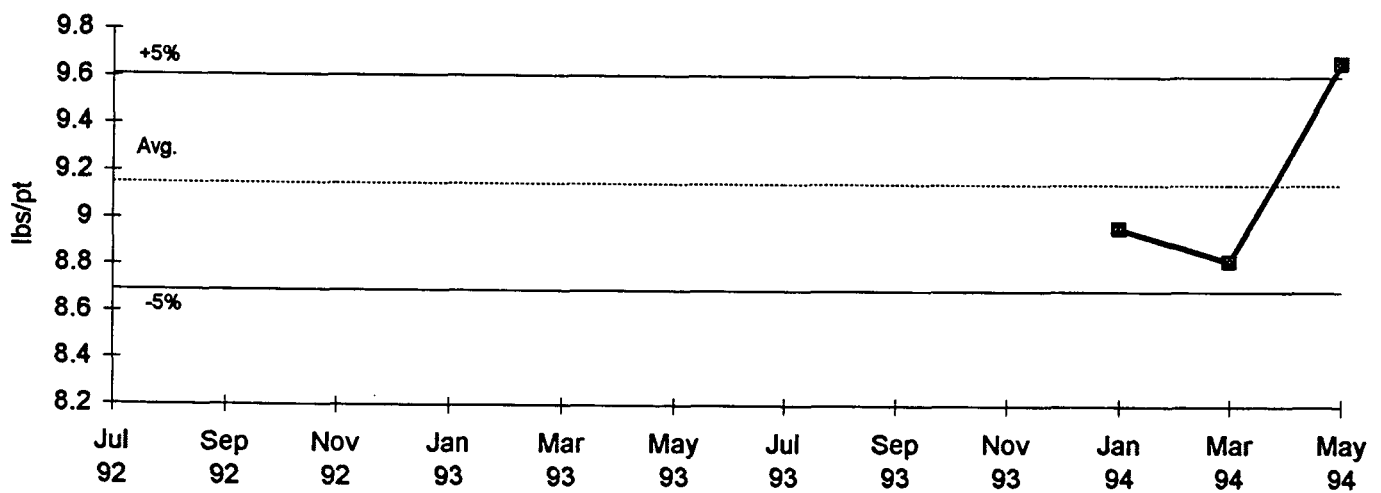
SUMMARY

Extensible

Apparent Density
lbs/pt

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	10.6	10.7	10.4
	Min	6.1	6.2	6.1
	Avg	9.2 (4)	8.9 (4)	9.0 (4)
	Stddev	2.1	2.0	1.9
60	Max	10.7	10.6	10.7
	Min	6.4	6.1	6.3
	Avg	9.0 (3)	8.8 (4)	9.7 (4)
	Stddev	2.2	2.0	2.0

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Apparent Density**60# Extensible Apparent Density**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

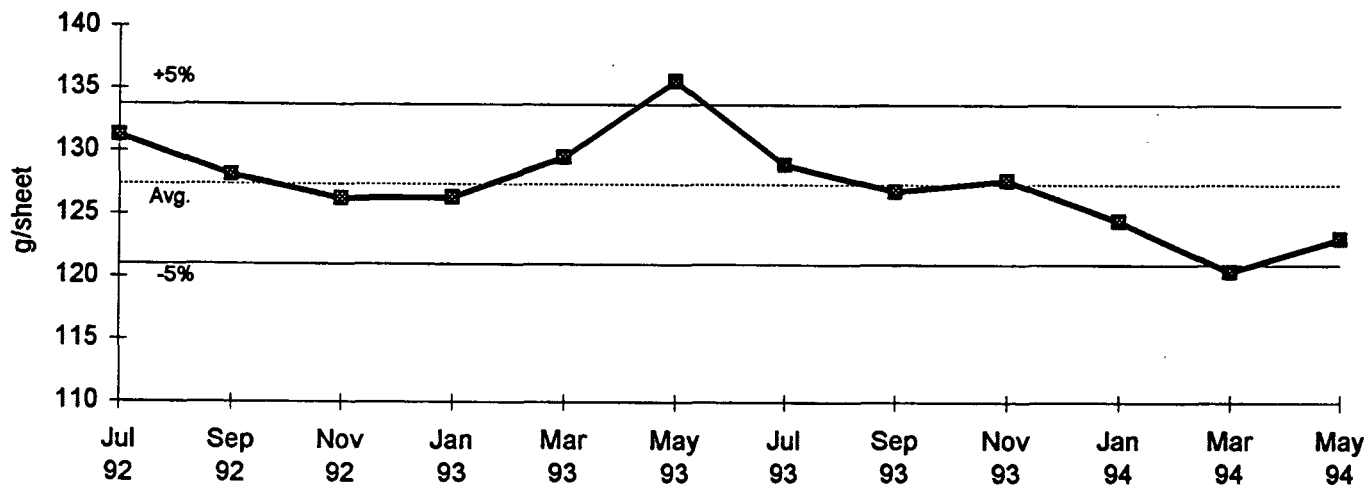
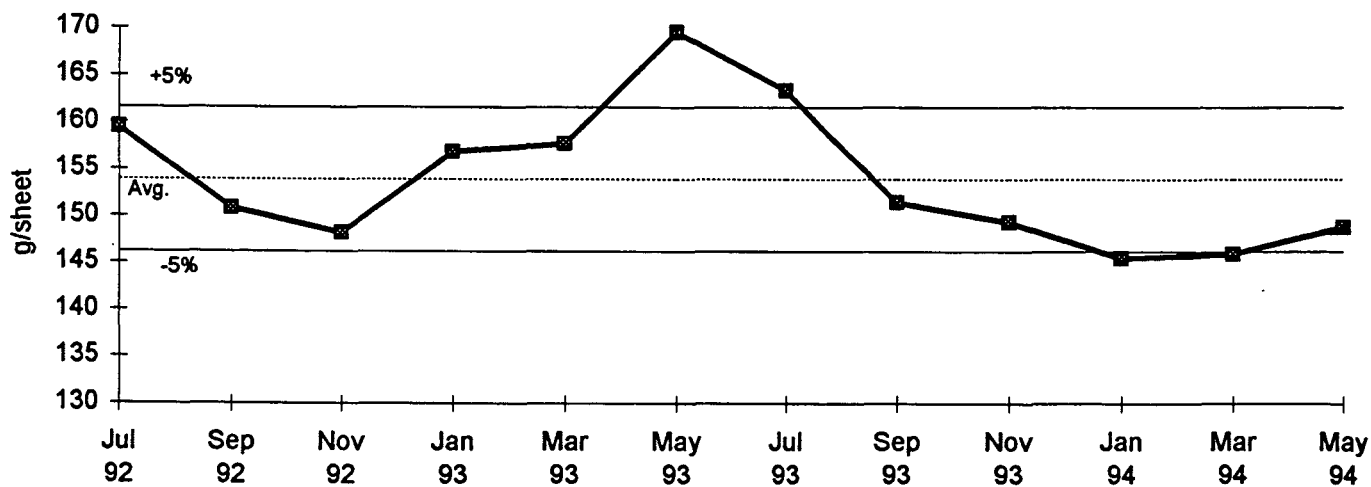
SUMMARY

Extensible

Adjusted MD Tear
g/sheet

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	138.0	128.5	133.0
	Min	109.0	109.0	114.0
	Avg	124.5 (5)	120.4 (4)	123.1 (4)
	Stddev	11.9	8.4	10.6
<hr/>				
60	Max	166.0	154.6	168.9
	Min	116.6	140.0	136.7
	Avg	145.4 (4)	145.9 (4)	148.7 (4)
	Stddev	23.1	6.6	14.6

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Adjusted MD Tear**60# Extensible Adjusted MD Tear**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

SUMMARY

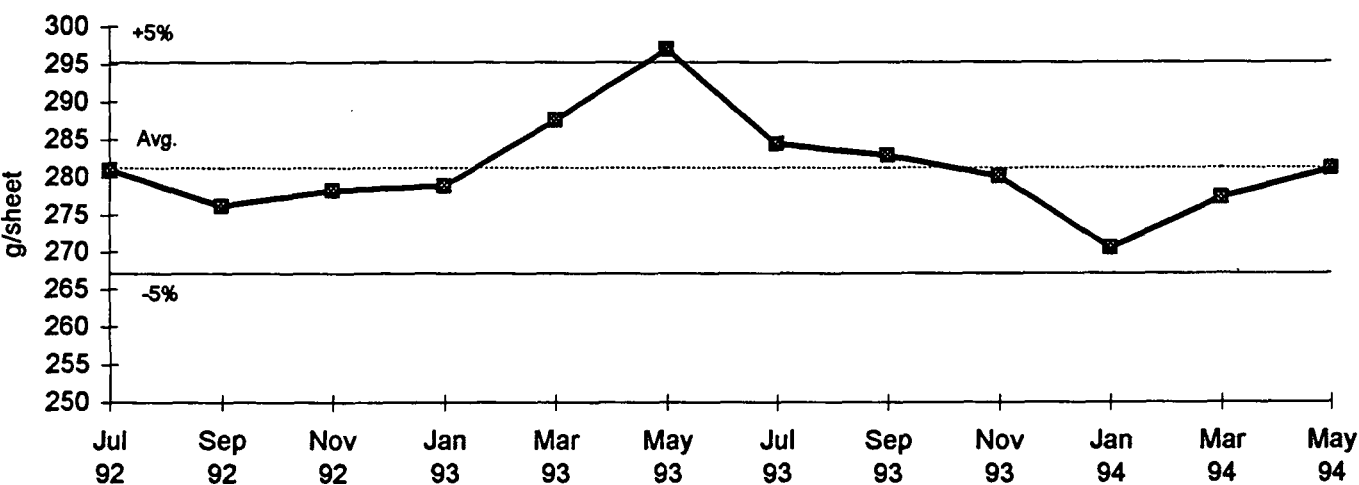
Extensible

Adjusted Total Tear
g/sheet

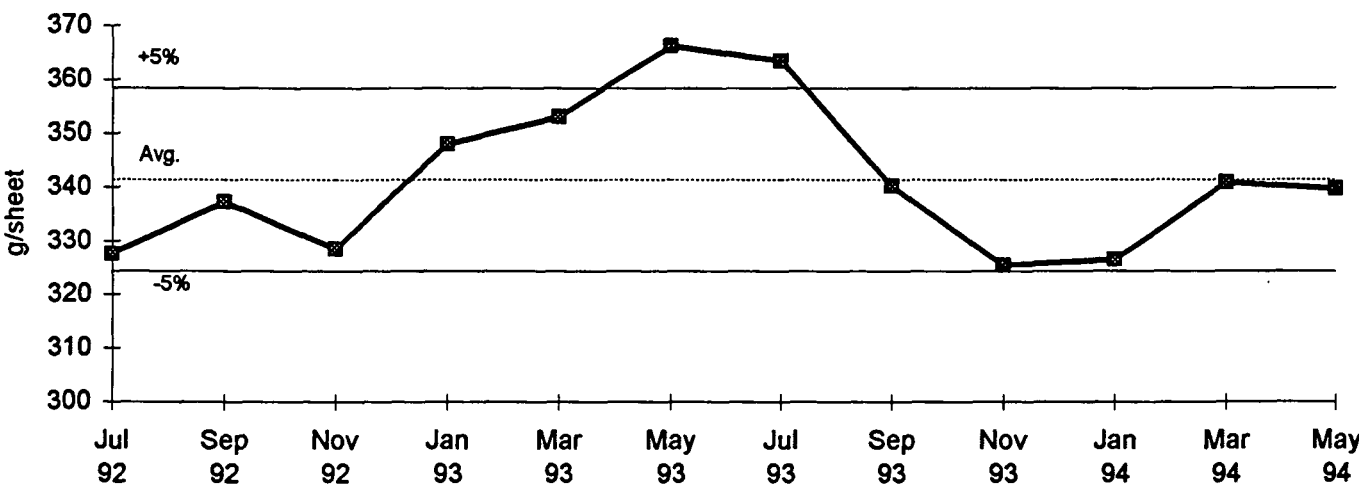
		JAN-FEB	MAR-APR	MAY-JUN
50	Max	288.0	294.5	297.0
	Min	256.0	251.0	259.0
	Avg	270.6 (5)	277.3 (4)	281.0 (4)
	Stddev	13.0	18.6	15.9
<hr/>				
60	Max	366.8	371.1	373.2
	Min	300.5	310.5	304.0
	Avg	326.5 (4)	340.9 (4)	339.6 (4)
	Stddev	27.3	27.7	30.5

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Adjusted Total Tear



60# Extensible Adjusted Total Tear



Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

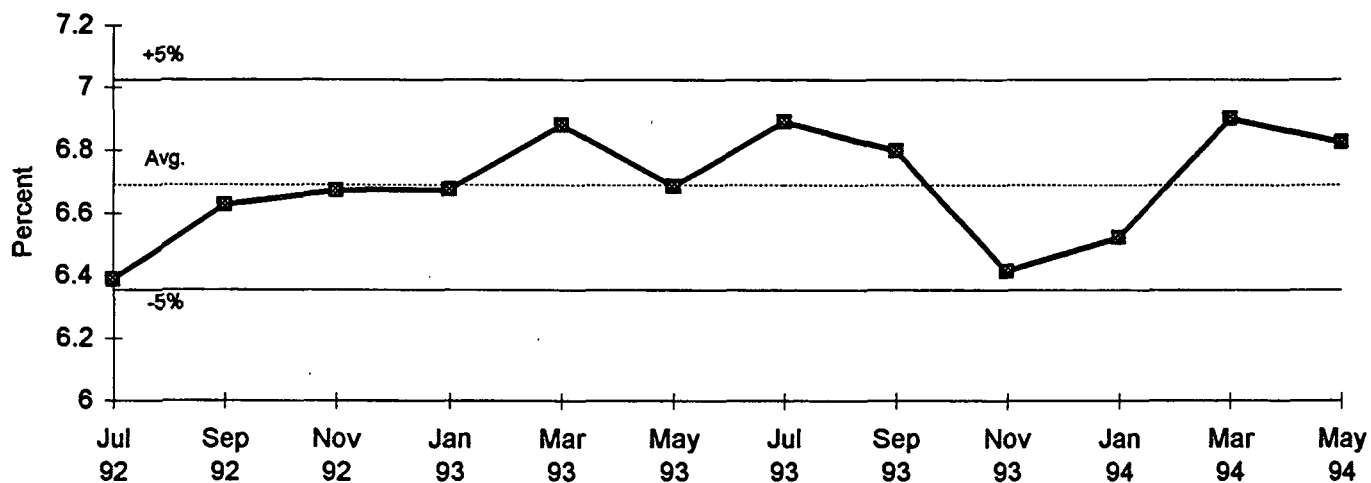
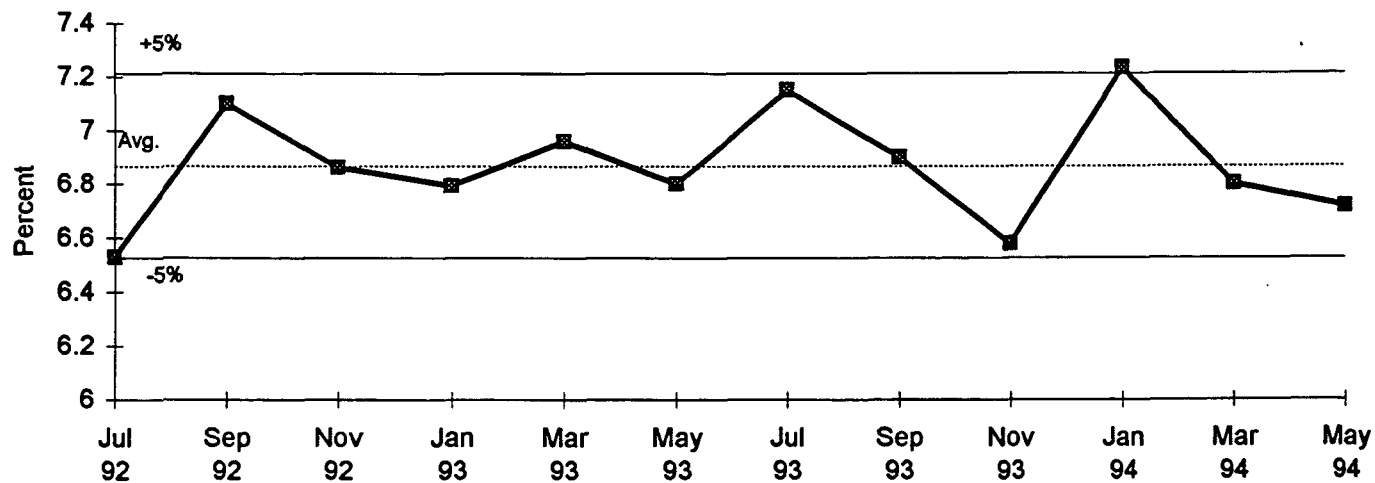
SUMMARY

Extensible

MD Stretch
Percent

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	8.3	8.5	8.0
	Min	5.4	6.1	6.1
	Avg	6.5 (5)	6.9 (4)	6.8 (4)
	Stddev	1.1	1.1	.9
<hr/>				
60	Max	9.2	7.9	8.1
	Min	6.1	6.1	6.0
	Avg	7.2 (4)	6.8 (4)	6.7 (4)
	Stddev	1.4	.8	1.0

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible MD Stretch**60# Extensible MD Stretch**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

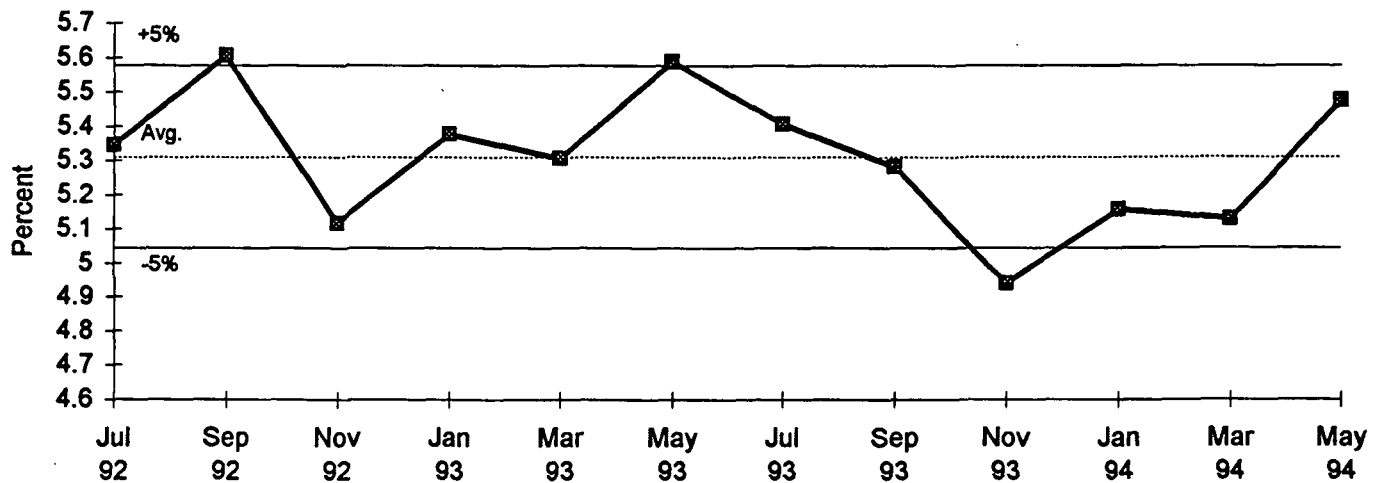
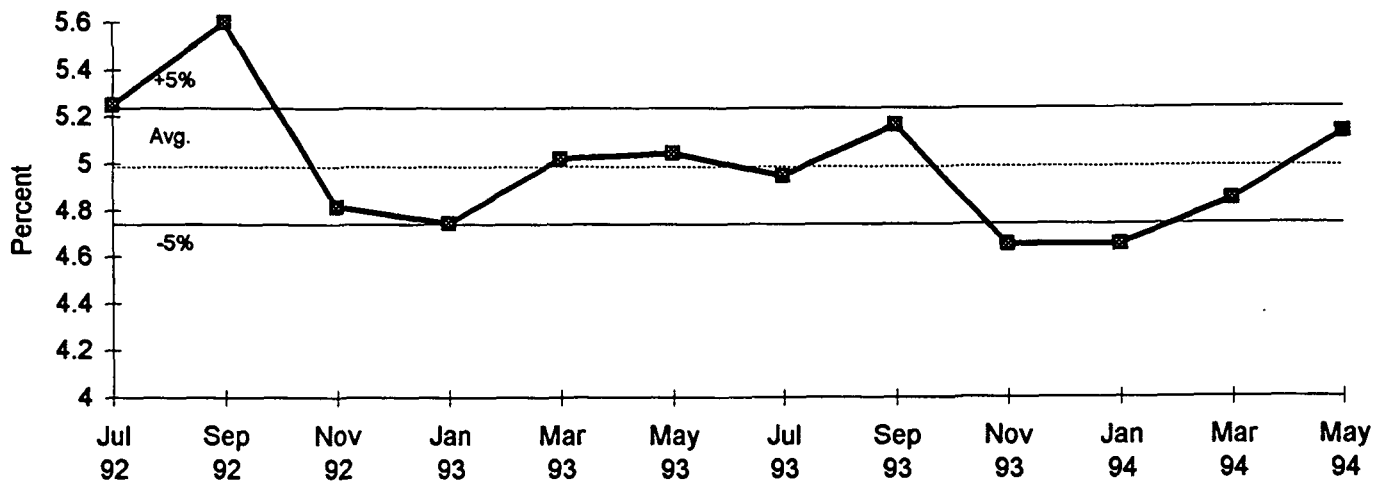
SUMMARY

Extensible

CD Stretch
Percent

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	5.9	6.4	6.4
	Min	4.5	4.5	4.6
	Avg	5.2 (5)	5.1 (4)	5.5 (4)
	Stddev	.5	.8	.7
<hr/>				
60	Max	5.3	5.9	6.0
	Min	4.2	4.3	4.2
	Avg	4.7 (4)	4.8 (4)	5.1 (4)
	Stddev	.5	.7	.7

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible CD Stretch**60# Extensible CD Stretch**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

SUMMARY

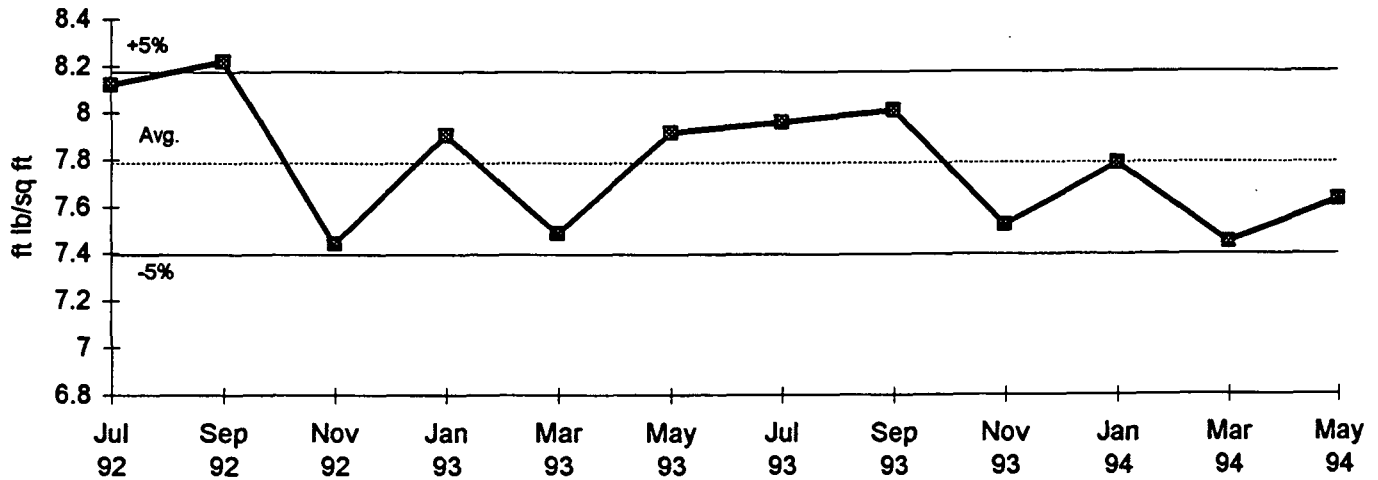
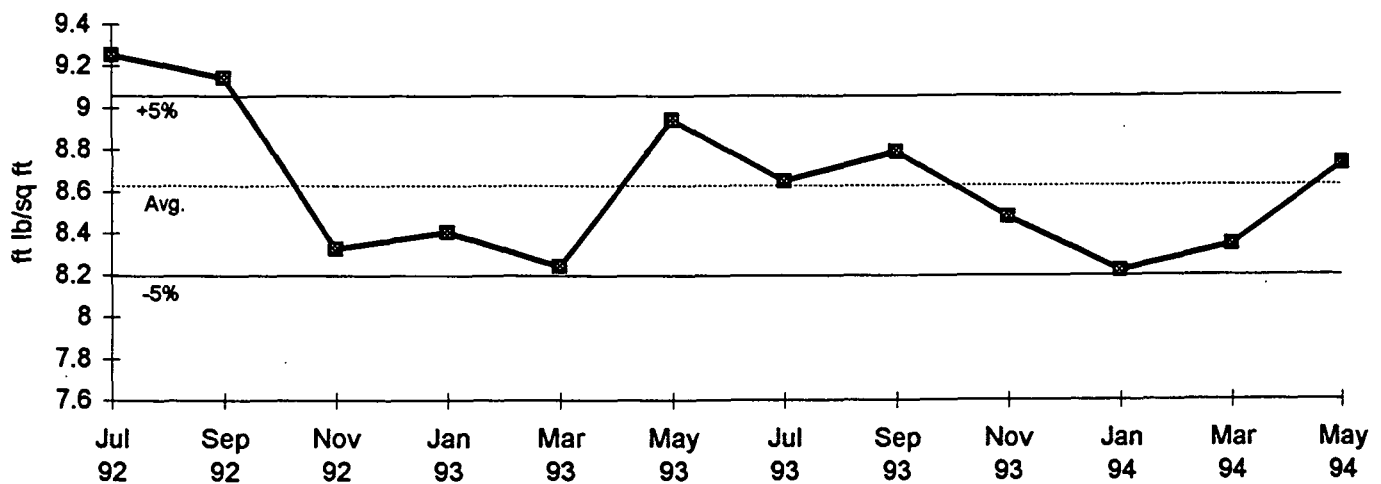
Extensible

CD TEA
ft lb/sq ft

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	9.2	9.4	8.8
	Min	6.2	6.6	6.6
	Avg	7.8 (5)	7.4 (4)	7.6 (4)
	Stddev	1.1	1.3	.9

60	Max	9.7	10.3	10.2
	Min	7.4	7.3	8.0
	Avg	8.2 (4)	8.3 (4)	8.7 (4)
	Stddev	1.1	1.3	1.0

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible CD TEA**60# Extensible CD TEA**

Kraft and Packaging Papers Division
For Periods Jan-Feb, Mar-Apr, May-Jun 1994

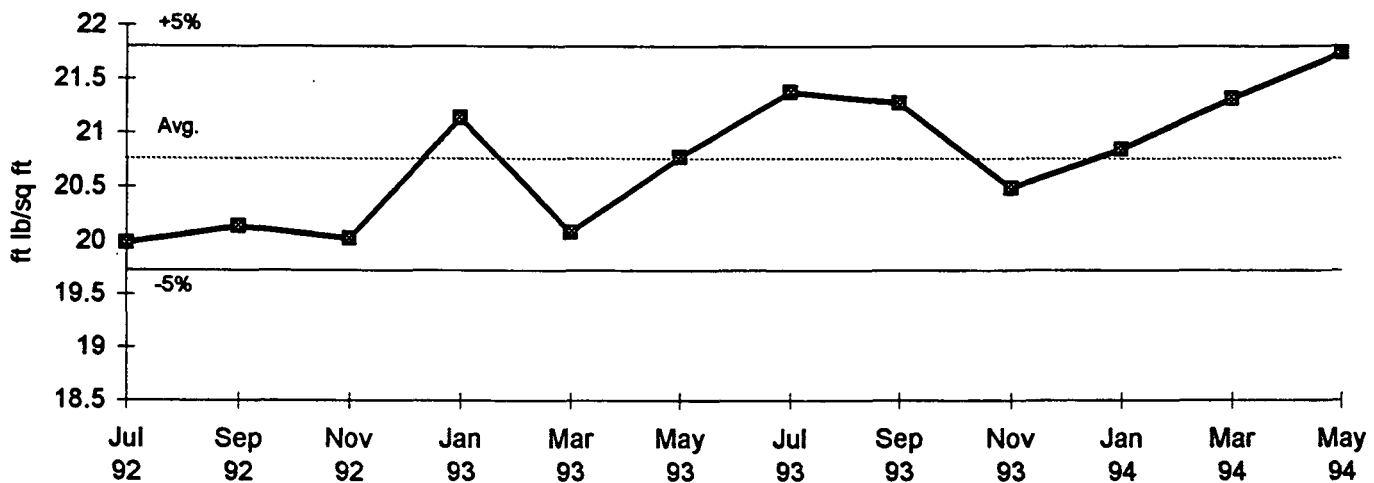
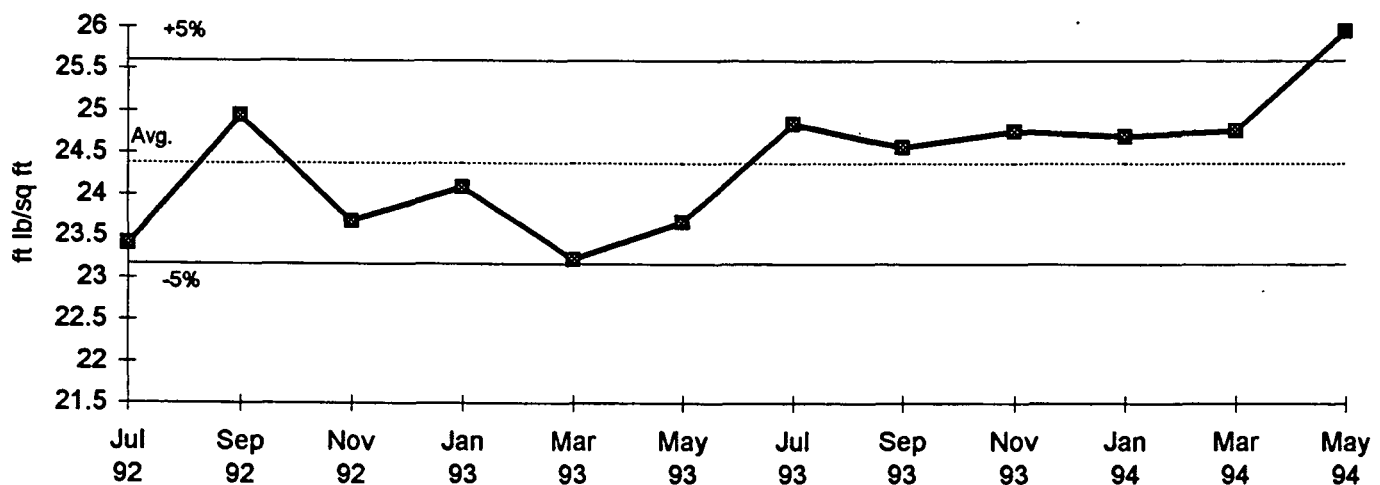
SUMMARY

Extensible

Total TEA
ft lb/sq ft

		JAN-FEB	MAR-APR	MAY-JUN
50	Max	24.1	26.3	25.3
	Min	18.8	19.7	19.3
	Avg	20.9 (5)	21.3 (4)	21.7 (4)
	Stddev	2.3	3.0	2.6
<hr/>				
60	Max	26.6	30.0	30.0
	Min	22.0	23.0	23.4
	Avg	24.7 (4)	24.8 (4)	26.0 (4)
	Stddev	2.0	3.3	3.1

Note: Stddev is Standard Deviation of current machine averages.
Avg is Current KPPD average.
Number of machines is indicated in ().

50# Extensible Total TEA**60# Extensible Total TEA**

INTRODUCTION

The continuous base-line study is a compilation of monthly averages of mill test data obtained routinely on five major grade weights of multiwall bag paper manufactured in the mills of KPPD members. Data are included for individuals machines which produced at least 50 tons of one of the following three major grade weights during a given period: 40, 50, and 60 lb flat; or any tonnage of 50 and 60 lb extensible.

The 40 lb extensible was not included in the report due to a minimum requirement of 3 machines reporting data to be added to this report.

Mill data are included for moisture content, basis weight, thickness, density, porosity, MD tear, and total tear for all grades; CD tensile and total tensile for flat grades; and MD stretch, CD stretch, CD TEA, and total TEA for extensible grades.

Participating mills are asked to report reel moisture content, basis weight, and moisture content corresponding to the basis weight measurement (if different from reel moisture). An adjusted basis weight is then calculated corresponding to a moisture content of 7.25% (AD basis). Only the reel moisture content and the adjusted basis weights are included in the report.

The type of tear tester (old or new style) used by each mill is given in Table XVII. For those mills using the new style tester, the reported tear values were adjusted to an estimated result for the old style tester using the following:

$$\text{Tear}_{\text{old}} = 1.06 \text{ Tear}_{\text{new}}$$

The type of tensile tester (T404 or T494) used by each mill is also given in Table XVII. For those mills using the tester described in T494, the reported tensile values were adjusted to an estimated T404 result using the following:

$$\text{Adjusted CD Tensile} = \text{Reported CD Tensile} * 1.02$$

$$\text{Adjusted Total Tensile} = \text{Reported Total Tensile} + \text{Adjustment to CD Tensile}$$

The above adjustments are based on data in Report One of Project 3679 (January 5, 1994).

PRESENTATION OF DATA

For the five major grade weights of multiwall bag paper referred to earlier, mill test averages for reel moisture content, adjusted basis weight, thickness, density, porosity, MD tear and total tear for all grades; CD tensile and total tensile for flat grades; and MD stretch, CD stretch, CD TEA, and total TEA for extensible grades are compiled in the following tables:

<u>Table Number</u>	<u>Description</u>
I-II-III	Mill Data on 40 lb Flat Multiwall Bag
IV-V-VI	Mill Data on 50 lb Flat Multiwall Bag
VII-VIII-IX	Mill Data on 60-lb Flat Multiwall Bag
X-XI-XII	Mill Data on 50 lb Extensible Multiwall Bag
XIII-XIV-XV	Mill Data on 60 lb Extensible Multiwall Bag

Data submitted by the participating mills relative to conditioning and testing environments are summarized in Table XVI. Data submitted relative to tear and tensile variables are summarized in Table XVII.

The procedures used in calculating adjusted basis weight, cumulative machine averages, machines indexes, and KPPD indexes are described in the appendix.

Table I

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994						Flat	40 #		
Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.7	6.5	124.1	40.5	40.3	96.2	11.5	12.0	118.6
C9	4.8	4.7	88.9	42.5	42.2	101.0	6.5	7.9	67.0
E6	5.5	5.6	101.9	41.7	41.8	99.0	9.1	10.3	93.8
H4	5.2	5.2	96.3	41.5	41.3	98.6	14.0	14.7	144.3
I6		5.6			44.3			6.8	
J5	5.8	5.8	107.4	42.1	42.0	100.0	7.2	7.0	74.2
N1	5.5	5.7	101.9	41.2	41.2	97.9	7.4	7.3	76.3
S2	6.5	6.3	120.4	43.0	43.0	102.1	13.5	13.2	139.2
T3	5.3	4.7	98.1	41.7	42.2	99.0	4.0	4.2	41.2
Y2	5.0	4.9	92.6	41.8	42.2	99.3	11.5	13.2	118.6
KPPD-F	5.5	5.4	101.9	41.7	42.1	99.0	9.5	9.7	97.9

Notes A and B are given in the appendix.

Table I (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Flat

40 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	4.1	4.1	87.2	9.9	9.9	110.0
C9	4.6	4.6	97.9	9.3	9.3	103.3
E6	4.6	4.6	97.9	9.1	9.1	101.1
H4	4.2	4.2	89.4	9.9	9.9	110.0
J5	5.5	5.5	117.0	7.7	7.7	85.6
S2	4.9	4.9	104.3	8.8	8.8	97.8
T3	5.0	5.0	106.4	8.4	8.4	93.3
Y2	4.6	4.6	97.9	9.1	9.1	101.1
KPPD-F	4.7	4.7	100.0	9.0	9.0	100.0

Note B is given in the appendix.

Table I (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 40 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	87.5	88.3	90.6	183.0	185.7	90.8
C9	110.2	105.0	114.1	227.4	215.2	112.9
E6	92.0	91.2	95.2	186.8	182.5	92.7
H4	92.0	95.8	95.2	188.5	197.7	93.5
I6		96.7			204.9	
J5	96.5	97.2	99.9	202.5	204.5	100.5
N1	106.3	102.6	110.0	215.1	208.7	106.7
S2	88.0	89.2	91.1	196.1	194.3	97.3
T3	90.1	91.5	93.3	189.7	192.5	94.1
Y2	98.0	100.6	101.4	205.5	210.9	102.0
KPPD-F	96.7	96.6	100.1	201.1	201.5	99.8

Note B is given in the appendix.

Table I (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 40 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	18.9	17.6	110.5	48.4	46.8	104.8
C9	15.2	15.4	88.9	44.5	44.3	96.3
E6	19.4	20.2	113.5	47.8	46.9	103.5
H4	17.1	16.6	100.0	48.4	46.2	104.8
I6		17.5			48.2	
J5	17.3	16.6	101.2	45.8	44.2	99.1
N1	17.0	17.8	99.4	43.7	44.7	94.6
S2	16.8	17.5	98.2	54.1	52.1	117.1
T3	16.7	16.8	97.7	48.0	46.5	103.9
Y2	17.9	17.6	104.7	44.3	44.6	95.9
KPPD-F	17.3	17.1	101.2	46.7	46.2	101.1

Note B is given in the appendix.

Table II

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 40 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.6	6.5	120.0	40.5	40.3	96.2	12.5	12.3	131.6
C9	4.7	4.7	85.5	41.4	42.2	98.3	6.5	7.8	68.4
E6	5.5	5.6	100.0	42.3	42.0	100.5	9.2	10.0	96.8
H4	5.2	5.2	94.5	41.5	41.4	98.6	13.0	14.0	136.8
I6	5.9	5.7	107.3	44.2	44.4	105.0	5.9	6.6	62.1
J5	5.7	5.8	103.6	41.8	41.9	99.3	6.3	6.8	66.3
N1	5.5	5.7	100.0	41.4	41.2	98.3	5.4	6.8	56.8
S2	6.6	6.4	120.0	43.5	43.1	103.3	11.5	12.9	121.1
T3	4.9	4.7	89.1	40.9	42.3	97.1	2.0	4.3	21.1
Y2	5.0	4.9	90.9	42.4	42.2	100.7	9.3	12.8	97.9
KPPD-F	5.6	5.5	101.8	42.0	42.1	99.8	8.5	9.5	89.5

Notes A and B are given in the appendix.

Table II (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 40 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	4.1	4.1	85.4	9.9	9.9	111.2
C9	4.8	4.7	100.0	8.6	9.0	96.6
E6	5.2	5.0	108.3	8.2	8.5	92.1
H4	4.3	4.2	89.6	9.8	9.8	110.1
I6	4.9	4.9	102.1	9.0	9.0	101.1
J5	5.5	5.5	114.6	7.7	7.7	86.5
S2	5.1	5.0	106.3	8.5	8.6	95.5
T3	5.0	5.0	104.2	8.2	8.3	92.1
Y2	4.7	4.7	97.9	9.0	9.1	101.1
KPPD-F	4.8	4.8	100.0	8.8	8.9	98.9

Note B is given in the appendix.

Table II (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 40 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	91.0	89.8	94.2	190.5	188.9	94.5
C9	98.1	104.2	101.6	203.5	214.1	101.0
E6	98.0	93.1	101.4	197.3	186.7	97.9
H4	99.5	96.7	103.0	201.0	199.3	99.8
I6	87.5	94.7	90.6	188.7	201.5	93.6
J5	101.8	98.4	105.4	208.3	205.5	103.4
N1	105.1	103.5	108.8	217.6	210.7	108.0
S2	87.5	88.9	90.6	196.1	194.7	97.3
T3	103.9	92.6	107.6	214.1	192.9	106.3
Y2	96.7	99.7	100.1	203.0	209.1	100.7
KPPD-F	96.5	96.6	99.9	201.4	201.5	100.0

Note B is given in the appendix.

Table II (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 40 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	18.9	18.0	109.2	49.9	47.6	107.5
C9	15.0	15.3	86.7	43.1	44.2	92.9
E6	19.7	20.0	113.9	46.6	46.9	100.4
H4	17.1	16.5	98.8	46.0	46.2	99.1
I6	17.0	17.4	98.3	48.9	48.7	105.4
J5	18.6	17.1	107.5	45.0	44.4	97.0
N1	16.7	17.7	96.5	42.4	44.3	91.4
S2	16.9	17.4	97.7	50.8	51.9	109.5
T3	17.1	17.1	98.8	42.9	46.4	92.5
Y2	17.6	17.5	101.7	44.0	44.2	94.8
KPPD-F	17.5	17.3	101.2	46.1	46.4	99.4

Note B is given in the appendix.

Table III

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 40 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	5.9	6.5	107.3	40.8	40.5	96.7	11.0	12.3	120.9
C9	4.9	4.7	89.1	41.8	42.0	99.1	5.5	7.2	60.4
E6	5.5	5.6	100.0	42.1	42.0	99.8	8.4	9.6	92.3
H4	5.3	5.2	96.4	41.4	41.5	98.1	14.0	13.8	153.8
I6	5.9	5.7	107.3	44.4	44.5	105.2	7.6	6.7	83.5
J5	5.9	5.9	107.3	41.8	41.9	99.1	7.5	6.7	82.4
N1	5.6	5.7	101.8	41.2	41.2	97.6	6.2	6.7	68.1
S2	6.5	6.4	118.2	43.5	43.2	103.1	13.9	12.6	152.7
T3	4.9	4.8	89.1	41.1	42.3	97.4	4.0	3.6	44.0
Y2	5.0	4.9	90.9	43.3	42.5	102.6	11.8	11.8	129.7
KPPD-F	5.4	5.5	98.2	42.0	42.2	99.5	8.7	9.1	95.6

Notes A and B are given in the appendix.

Table III (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994

Flat

40 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	3.9	4.1	81.3	10.5	10.0	118.0
C9	5.0	4.8	104.2	8.4	8.8	94.4
E6	5.3	5.1	110.4	8.0	8.4	89.9
H4	4.2	4.2	87.5	9.9	9.8	111.2
I6	4.8	4.9	100.0	9.2	9.1	103.4
J5	5.3	5.4	110.4	8.0	7.8	89.9
S2	5.0	5.0	104.2	8.7	8.6	97.8
T3	5.1	5.0	106.3	8.1	8.2	91.0
Y2	4.8	4.7	100.0	9.1	9.1	102.2
KPPD-F	4.8	4.8	100.0	8.8	8.9	98.9

Note B is given in the appendix.

Table III (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 40 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	g/sheet			g/sheet		
	Cur	Cum	Ind	Cur	Cum	Ind
	Avg	Avg	*B	Avg	Avg	*B
A9	87.0	89.1	89.9	187.0	187.9	92.7
C9	109.7	105.4	113.3	225.3	217.2	111.6
E6	97.5	93.8	100.7	196.3	188.7	97.3
H4	98.0	97.3	101.2	197.5	199.6	97.9
I6	92.7	93.8	95.8	194.1	199.6	96.2
J5	95.9	97.4	99.1	202.5	203.3	100.3
N1	101.4	103.1	104.8	207.8	210.2	103.0
S2	88.0	88.3	90.9	195.0	194.0	96.6
T3	98.6	94.0	101.9	208.3	196.0	103.2
Y2	99.4	98.6	102.7	205.6	207.1	101.9
KPPD-F	98.2	96.8	96.5	204.1	201.8	101.1

Note B is given in the appendix.

Table III (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994

Flat

40 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	18.4	18.2	106.4	53.4	48.6	115.1
C9	15.1	15.2	87.3	42.9	44.2	92.5
E6	20.3	20.0	117.3	46.6	46.9	100.4
H4	17.1	16.7	98.8	44.8	46.2	96.6
I6	18.6	17.6	107.5	49.2	48.9	106.0
J5	16.6	17.3	96.0	44.4	44.7	95.7
N1	18.1	17.8	104.6	46.1	44.6	99.4
S2	17.1	17.4	98.8	51.5	52.1	111.0
T3	16.2	17.0	93.6	43.3	45.8	93.3
Y2	18.0	17.5	104.0	45.2	44.3	97.4
KPPD-F	17.3	17.3	100.0	45.9	46.4	98.9

Note B is given in the appendix.

Table IV

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 50 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.3	6.4	112.5	51.0	50.7	97.5	11.0	9.8	104.8
C1	6.2	6.4	110.7	53.3	52.8	101.9	14.6	14.3	139.0
C9		4.9			52.8			7.8	
E6	5.6	5.7	100.0	51.4	51.3	98.3	9.5	10.2	90.5
F7	6.0	6.0	107.1	53.1	53.1	101.5	6.8	7.1	64.8
G3	6.6	6.7	117.9	53.8	53.5	102.9	12.5	12.6	119.0
H4	4.8	5.0	85.7	51.9	52.2	99.2	15.0	14.7	142.9
I6	5.6	5.7	100.0		53.4		5.7	7.8	54.3
J5	6.0	5.9	107.1	51.8	52.1	99.0	7.1	7.6	67.6
N1	5.8	5.8	103.6	51.3	51.2	98.1	8.7	8.1	82.9
S2	6.6	6.5	117.9	53.3	52.8	101.9	12.9	12.8	122.9
T3		4.7			51.4			6.7	
U7	4.8	5.0	85.7	53.2	53.4	101.7	5.0	4.9	47.6
V5		6.4			50.9			9.0	
Y2	5.0	5.0	89.3	51.5	51.8	98.5	13.6	15.5	129.5
Z5	5.0	4.6	89.3	53.2	52.9	101.7	15.5	15.8	147.6
KPPD-F	5.7	5.6	101.8	52.4	52.3	100.2	10.9	10.5	103.8

Notes A and B are given in the appendix.

Table IV (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Flat

50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	5.1	5.1	87.9	10.0	10.0	109.9
C1	5.7	5.7	98.3	9.4	9.4	103.3
E6	5.5	5.5	94.8	9.4	9.4	103.3
F7	5.8	5.8	100.0	9.1	9.1	100.0
H4	5.3	5.3	91.4	9.9	9.9	108.8
I6	5.7	5.7	98.3			
J5	6.5	6.5	112.1	8.0	8.0	87.9
S2	5.9	5.9	101.7	9.1	9.1	100.0
U7	6.3	6.3	108.6	8.5	8.5	93.4
Y2	5.5	5.5	94.8	9.4	9.4	103.3
Z5	5.6	5.6	96.6	9.4	9.4	103.3
KPPD-F	5.8	5.8	100.0	9.1	9.1	100.0

Note B is given in the appendix.

Table IV (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Flat

50 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	118.0	119.6	92.8	244.5	248.1	92.7
C1	124.0	126.1	97.6	259.7	263.8	98.5
C9		131.0			267.5	
E6	119.6	121.4	94.1	246.7	244.6	93.6
F7	133.0	132.2	104.6	268.3	270.2	101.7
G3	121.9	126.3	95.9	256.0	265.2	97.1
H4	120.0	128.0	94.4	247.0	262.8	93.7
I6	138.1	127.6	108.7	293.8	267.4	111.4
J5	123.5	124.9	97.2	259.7	259.7	98.5
N1	143.9	136.6	113.2	287.6	278.3	109.1
S2	117.7	117.0	92.6	261.8	259.7	99.3
T3		119.5			250.6	
U7	134.1	130.6	105.5	271.9	265.2	103.1
V5		119.0			249.0	
Y2	128.3	131.4	100.9	267.0	272.4	101.3
Z5	130.8	135.4	102.9	267.0	279.2	101.3
KPPD-F	126.9	127.1	99.8	263.3	263.7	99.8

Note B is given in the appendix.

Table IV (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 50 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	23.0	22.4	107.5	60.0	59.3	104.0
C1	22.0	21.5	102.8	60.7	59.3	105.2
C9		19.0			56.0	
E6	23.7	24.8	110.7	59.5	59.2	103.1
F7	22.7	22.2	106.1	57.8	58.9	100.2
G3	20.4	20.6	95.3	54.7	55.6	94.8
H4	21.9	20.8	102.3	60.6	58.4	105.0
I6	19.9	22.4	93.0	56.1	60.4	97.2
J5	21.5	21.1	100.5	56.6	54.8	98.1
N1	21.8	21.7	101.9	56.2	56.4	97.4
S2	19.9	20.8	93.0	61.7	62.3	106.9
T3		21.7			59.8	
U7	19.3	19.2	90.2	53.3	54.1	92.4
V5		22.4			61.4	
Y2	22.2	22.3	103.7	55.3	56.1	95.8
Z5	20.8	20.5	97.2	56.0	55.4	97.1
KPPD-F	21.4	21.4	100.0	57.4	57.7	99.5

Note B is given in the appendix.

Table V

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 50 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.1	6.3	108.9	50.7	50.7	96.8	10.5	9.9	101.0
C1	6.3	6.4	112.5	53.3	52.9	101.7	13.9	14.0	133.7
C9	4.6	4.8	82.1	52.2	52.8	99.6	8.0	7.6	76.9
E6	5.5	5.7	98.2	51.7	51.4	98.7	9.9	10.2	95.2
F7	6.0	6.0	107.1	53.6	53.2	102.3	6.1	6.9	58.7
G3	6.6	6.6	117.9	53.2	53.3	101.5	12.8	12.8	123.1
H4	5.1	5.0	91.1	52.6	52.3	100.4	15.5	14.8	149.0
I6	6.0	5.8	107.1	55.8	54.1	106.5	6.0	6.9	57.7
J5	5.8	5.9	103.6	52.1	52.0	99.4	8.9	7.7	85.6
N1	5.8	5.8	103.6	51.6	51.3	98.5	8.6	8.0	82.7
S2	6.6	6.5	117.9	53.6	53.0	102.3	11.9	12.7	114.4
T3	4.7	4.7	83.9	50.9	51.4	97.1	3.0	6.2	28.8
U7	4.8	4.9	85.7	53.3	53.4	101.7	6.0	5.0	57.7
V5		6.4			50.9			9.0	
Y2	5.3	5.0	94.6	52.2	51.8	99.6	9.8	15.0	94.2
Z5	5.5	4.7	98.2	52.9	52.9	101.0	19.7	17.4	189.4
KPPD-F	5.7	5.6	101.8	52.6	52.4	100.4	9.6	10.4	92.3

Notes A and B are given in the appendix.

Table V (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat

50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	5.2	5.1	89.7	9.9	9.9	108.8
C1	6.0	5.9	103.4	8.9	9.1	97.8
C9	5.4	5.4	93.1	9.7	9.7	106.6
E6	5.6	5.5	96.6	9.3	9.3	102.2
F7	6.0	5.9	103.4	9.0	9.0	98.9
H4	5.4	5.3	93.1	9.8	9.9	107.7
I6	5.8	5.8	100.0	9.6	9.6	105.5
J5	6.8	6.7	117.2	7.7	7.8	84.6
S2	5.9	5.9	101.7	9.1	9.1	100.0
T3	6.1	6.1	105.2	8.4	8.4	92.3
U7	6.3	6.3	108.6	8.5	8.5	93.4
Y2	5.6	5.6	96.6	9.3	9.4	102.2
Z5	5.7	5.7	98.3	9.3	9.4	102.2
KPPD-F	5.8	5.8	100.0	9.1	9.1	100.0

Note B is given in the appendix.

Table V (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 50 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	118.5	119.7	93.6	251.5	248.6	96.1
C1	115.0	124.8	90.8	242.0	261.3	92.5
C9	134.6	132.1	106.3	272.4	268.4	104.1
E6	120.1	121.0	94.9	244.9	244.5	93.6
F7	128.9	132.1	101.8	206.8	259.0	79.1
G3	112.9	124.2	89.2	238.0	260.1	91.0
H4	129.0	128.1	101.9	262.0	262.3	100.2
I6	116.2	125.7	91.8	244.1	262.6	93.3
J5	125.6	124.9	99.2	261.8	259.1	100.1
N1	139.7	137.7	110.3	284.2	280.0	108.6
S2	116.1	116.9	91.7	261.8	260.2	100.1
T3	130.9	121.2	103.4	274.0	253.3	104.7
U7	129.3	130.3	102.1	264.5	264.8	101.1
V5		119.0			249.0	
Y2	127.2	130.0	100.5	265.4	269.5	101.5
Z5	128.2	133.7	101.3	260.4	274.6	99.5
KPPD-F	124.7	126.6	98.5	255.3	261.6	97.6

Note B is given in the appendix.

Table V (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 50 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	23.5	22.8	109.3	61.0	59.8	105.7
C1	21.0	21.5	97.7	61.5	59.8	106.6
C9	18.7	19.0	87.0	53.6	55.9	92.9
E6	24.5	24.6	114.0	59.3	59.1	102.8
F7	23.3	22.5	108.4	59.2	59.0	102.6
G3	20.8	20.7	96.7	55.7	55.4	96.5
H4	20.8	20.8	96.7	58.2	58.4	100.9
I6	21.6	22.5	100.5	58.6	60.2	101.6
J5	21.7	21.5	100.9	55.7	55.0	96.5
N1	21.8	21.8	101.4	56.2	56.5	97.4
S2	20.5	20.6	95.3	62.2	62.4	107.8
T3	20.5	21.5	95.3	52.8	58.6	91.5
U7	18.9	19.2	87.9	55.1	54.2	95.5
V5		22.4			61.4	
Y2	22.0	22.2	102.3	54.9	55.8	95.1
Z5	20.8	20.6	96.7	56.0	55.6	97.1
KPPD-F	21.5	21.5	100.0	57.4	57.7	99.5

Note B is given in the appendix.

Table VI

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994						Flat	50 #		
Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.0	6.2	107.1	50.5	50.7	96.4	10.0	10.2	98.0
C1		6.4			53.1			14.3	
C9	4.8	4.7	85.7	52.9	52.7	101.0	4.0	5.8	39.2
E6	5.6	5.6	100.0	51.7	51.5	98.7	9.6	10.0	94.1
F7	6.0	6.0	107.1	54.1	53.4	103.2	6.6	6.7	64.7
G3	6.6	6.6	117.9	54.0	53.3	103.1	15.2	13.5	149.0
H4	5.2	5.0	92.9	51.4	52.1	98.1	14.0	14.8	137.3
I6		5.7			54.2			6.9	
J5	5.6	5.9	100.0	52.0	52.1	99.2	5.1	7.3	50.0
N1	5.7	5.8	101.8	51.3	51.3	97.9	7.6	7.9	74.5
S2	6.6	6.6	117.9	53.4	53.2	101.9	12.2	12.5	119.6
T3	5.0	4.9	89.3	51.2	51.4	97.7	4.5	5.3	44.1
U7	4.9	4.9	87.5	53.6	53.4	102.3	4.5	5.0	44.1
V5		6.4			50.9			9.0	
Y2	5.5	5.1	98.2	52.9	52.0	101.0	14.4	15.0	141.2
Z5	5.4	4.8	96.4	53.5	53.0	102.1	18.3	17.3	179.4
KPPD-F	5.6	5.6	100.0	52.5	52.4	100.2	9.6	10.2	94.1

Notes A and B are given in the appendix.

Table VI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994

Flat

50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	5.1	5.1	87.9	9.9	9.9	108.8
C1		5.9			9.1	
C9	6.4	6.0	110.3	8.3	8.8	91.2
E6	5.8	5.6	100.0	9.0	9.2	98.9
F7	6.1	6.0	105.2	8.9	9.0	97.8
H4	5.3	5.3	91.4	9.7	9.8	106.6
I6		5.8			9.6	
J5	6.7	6.7	115.5	7.8	7.8	85.7
S2	6.0	5.9	103.4	9.0	9.0	98.9
T3	5.9	6.0	101.7	8.8	8.6	96.7
U7	6.4	6.3	110.3	8.4	8.5	92.3
Y2	5.5	5.5	94.8	9.6	9.5	105.5
Z5	5.8	5.7	100.0	9.2	9.3	101.1
KPPD-F	5.9	5.8	101.7	9.0	9.1	98.9

Note B is given in the appendix.

Table VI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 50 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	123.5	120.6	97.8	254.5	250.3	97.5
C1		121.5			256.1	
C9	142.0	136.0	112.4	291.0	277.7	111.5
E6	120.9	120.7	95.7	242.7	244.3	93.0
F7	126.4	131.3	100.1	255.6	256.4	97.9
G3	118.6	122.5	93.9	247.9	256.2	95.0
H4	126.5	127.6	100.2	257.5	260.8	98.7
I6		125.6			263.1	
J5	125.1	125.4	99.0	258.6	259.8	99.1
N1	134.7	137.2	106.7	275.6	279.3	105.6
S2	115.0	116.4	91.1	256.0	260.4	98.1
T3	124.6	122.6	98.7	261.8	256.2	100.3
U7	126.1	129.4	99.8	256.0	263.0	98.1
V5		119.0			249.0	
Y2	127.7	128.2	101.1	265.3	266.6	101.6
Z5	132.5	131.9	104.9	265.5	270.4	101.7
KPPD-F	126.2	126.3	99.9	260.5	261.0	99.8

Note B is given in the appendix.

Table VI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 50 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	23.5	22.9	109.3	61.0	60.3	105.9
C1		21.5			60.3	
C9	18.5	18.8	86.0	52.9	54.7	91.8
E6	24.9	24.6	115.8	58.9	59.2	102.3
F7	21.5	22.5	100.0	57.4	58.7	99.7
G3	20.7	20.9	96.3	56.1	55.7	97.4
H4	21.0	20.9	97.7	56.8	58.4	98.6
I6		22.2			59.9	
J5	21.6	21.3	100.5	54.2	55.0	94.1
N1	22.3	21.9	103.7	57.5	56.7	99.8
S2	21.0	20.6	97.7	61.4	62.2	106.6
T3	21.4	21.6	99.5	57.6	58.0	100.0
U7	19.9	19.3	92.6	55.8	54.5	96.9
V5		22.4			61.4	
Y2	22.0	22.1	102.3	55.9	55.9	97.0
Z5	21.2	20.6	98.6	56.0	55.6	97.2
KPPD-F	21.5	21.5	100.0	57.2	57.6	99.3

Note B is given in the appendix.

Table VII

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 60 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.6	6.7	113.8	60.3	60.0	97.3	10.0	9.7	96.2
C1	6.5	6.4	112.1	61.8	62.0	99.7	13.2	12.8	126.9
C9		5.0			64.1			7.0	
E6	6.5	6.2	112.1	61.4	61.1	99.0	10.4	10.5	100.0
F7	6.1	6.1	105.2	62.6	62.0	101.0	6.5	7.6	62.5
G3	6.6	6.8	113.8	63.5	63.2	102.4	11.3	11.3	108.7
H4	4.8	4.9	82.8	62.8	62.7	101.3	14.0	14.2	134.6
J5	6.0	5.9	103.4	61.9	61.4	99.8	8.7	7.8	83.7
N1	5.4	5.7	93.1	61.2	61.2	98.7	8.3	8.7	79.8
S2	6.8	6.5	117.2	63.1	62.2	101.8	10.3	11.8	99.0
T3		4.7			61.1			7.9	
U7	4.8	4.9	82.8	63.8	63.8	102.9	5.5	5.1	52.9
V5		6.7			60.6			10.0	
X1	7.0	7.2	120.7	60.9	60.8	98.2	12.0	11.0	115.4
Y2	5.0	5.0	86.2	61.3	61.3	98.9	16.2	16.2	155.8
Z5	5.1	4.9	87.9	62.3	62.8	100.5	16.7	16.1	160.6
KPPD-F	5.8	5.8	100.0	62.1	62.0	100.2	11.0	10.4	105.8

Notes A and B are given in the appendix.

Table VII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Flat 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.2	6.2	89.9	9.8	9.8	107.7
C1	6.9	6.9	100.0	9.0	9.0	98.9
E6	6.6	6.6	95.7	9.3	9.3	102.2
F7	6.7	6.7	97.1	9.3	9.3	102.2
H4	6.2	6.2	89.9	10.1	10.1	111.0
J5	7.9	7.9	114.5	7.8	7.8	85.7
S2	7.3	7.3	105.8	8.7	8.7	95.6
U7	7.1	7.1	102.9	9.1	9.1	100.0
Z5	6.4	6.4	92.8	9.7	9.7	106.6
KPPD-F	6.9	6.9	100.0	9.1	9.1	100.0

Note B is given in the appendix.

Table VII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Flat

60 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	148.0	151.7	93.8	310.0	316.8	94.9
C1	154.2	154.5	97.7	316.4	324.7	96.9
C9		155.8			320.1	
E6	149.8	151.2	94.9	311.3	306.3	95.3
F7	167.3	163.0	106.0	337.0	333.8	103.2
G3	155.0	160.8	98.2	326.4	339.8	99.9
H4	147.0	158.2	93.2	311.0	329.0	95.2
J5	152.6	155.7	96.7	315.4	320.4	96.6
N1	174.5	167.5	110.6	348.3	342.6	106.6
S2	145.2	144.6	92.0	330.7	321.2	101.3
T3		154.1			320.9	
U7	167.0	162.5	105.8	291.0	321.4	89.1
V5		142.5			297.5	
X1	149.0	144.5	94.4	299.0	294.8	91.5
Y2	159.6	159.6	101.1	339.2	339.2	103.9
Z5	163.9	170.4	103.9	329.3	349.2	100.8
KPPD-F	156.9	157.8	99.4	319.7	326.6	97.9

Note B is given in the appendix.

Table VII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Flat

60 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	26.0	26.1	102.8	72.5	70.7	106.0
C1	26.2	25.0	103.6	70.2	69.9	102.6
C9		22.2			64.0	
E6	26.5	28.9	104.7	70.5	71.0	103.1
F7	27.5	25.9	108.7	68.4	69.0	100.0
G3	23.7	23.5	93.7	63.2	63.7	92.4
H4	25.5	24.6	100.8	75.4	72.0	110.2
J5	25.6	25.5	101.2	61.2	64.7	89.5
N1	25.7	25.3	101.6	66.9	67.1	97.8
S2	22.6	24.5	89.3	75.3	73.8	110.1
T3		25.8			69.5	
U7	23.3	24.0	92.1	65.6	65.6	95.9
V5		25.8			69.3	
X1	26.5	26.0	104.7	66.5	67.0	97.2
Y2	25.4	25.4	100.4	66.3	66.3	96.9
Z5	25.6	25.0	101.2	66.3	66.9	96.9
KPPD-F	25.3	25.3	100.0	68.1	68.4	99.6

Note B is given in the appendix.

Table VIII

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994							Flat		60 #
Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.8	6.8	117.2	60.1	60.0	96.8	12.5	10.0	119.0
C1	6.6	6.4	113.8	61.4	62.0	98.9	13.8	13.1	131.4
C9		5.0			64.1			7.0	
E6	6.2	6.2	106.9	61.3	61.2	98.7	9.6	10.3	91.4
F7	6.1	6.1	105.2	62.7	62.2	101.0	5.6	7.5	53.3
G3	6.6	6.7	113.8	62.9	63.1	101.3	12.8	11.4	121.9
H4	4.8	4.9	82.8	63.3	62.9	101.9	15.0	14.3	142.9
J5	5.9	5.9	101.7	62.5	61.4	100.6	7.1	7.5	67.6
N1	5.7	5.7	98.3	61.5	61.3	99.0	8.9	8.6	84.8
S2	6.8	6.6	117.2	63.6	62.7	102.4	12.1	11.8	115.2
T3	4.4	4.7	75.9	60.8	61.1	97.9	4.0	7.4	38.1
U7	4.9	4.9	84.5	64.0	63.8	103.1	7.5	5.3	71.4
V5		6.8			60.1			10.0	
X1		7.0			60.8			10.7	
Y2		5.0			61.3			16.2	
Z5	5.2	5.0	89.7	62.4	62.8	100.5	12.0	16.4	114.3
KPPD-F	5.8	5.8	100.0	62.2	62.1	100.2	10.2	10.5	97.1

Notes A and B are given in the appendix.

Table VIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.2	6.2	91.2	9.7	9.7	105.4
C1	6.8	6.9	100.0	9.1	9.0	98.9
E6	6.5	6.5	95.6	9.4	9.4	102.2
F7	6.9	6.9	101.5	9.1	9.1	98.9
H4	6.3	6.2	92.6	10.1	10.1	109.8
J5	8.0	7.9	117.6	7.8	7.8	84.8
S2	7.0	7.1	102.9	9.2	9.0	100.0
T3	7.6	7.6	111.8	8.1	8.1	88.0
U7	6.7	6.9	98.5	9.6	9.3	104.3
Z5	6.7	6.6	98.5	9.4	9.5	102.2
KPPD-F	6.8	6.8	100.0	9.2	9.2	100.0

Note B is given in the appendix.

Table VIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Flat 60 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	158.0	153.2	100.5	318.0	317.6	97.8
C1	146.3	153.0	93.1	302.4	321.6	93.0
C9		155.8			320.1	
E6	150.7	151.0	95.9	306.3	306.7	94.2
F7	159.3	162.7	101.3	322.0	331.8	99.0
G3	141.8	157.9	90.2	303.3	333.4	93.2
H4	154.0	157.7	98.0	318.5	327.3	97.9
J5	163.2	157.0	103.8	341.3	322.6	104.9
N1	175.8	169.5	111.8	351.3	344.5	108.0
S2	143.6	144.5	91.3	320.7	321.7	98.6
T3	156.4	154.1	99.5	333.4	322.5	102.5
U7	156.9	159.0	99.8	323.3	315.7	99.4
V5		148.0			310.0	
X1		142.7			290.3	
Y2		159.6			339.2	
Z5	162.6	167.6	103.4	337.4	343.6	103.7
KPPD-F	155.4	157.2	98.9	322.4	325.3	99.1

Note B is given in the appendix.

Table VIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994

Flat

60 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	26.5	26.2	104.7	73.5	71.4	107.1
C1	25.0	24.9	98.8	68.3	69.8	99.6
C9		22.2			64.0	
E6	28.5	28.7	112.6	70.9	70.8	103.4
F7	27.7	26.3	109.5	69.2	69.2	100.9
G3	23.6	23.5	93.3	65.2	63.8	95.0
H4	24.3	24.6	96.0	71.8	71.9	104.7
J5	24.2	25.6	95.7	64.9	64.6	94.6
N1	26.1	25.6	103.2	66.4	67.1	96.8
S2	23.6	24.1	93.3	72.8	73.6	106.1
T3	26.0	26.1	102.8	69.7	69.8	101.6
U7	23.6	24.0	93.3	67.0	66.2	97.7
V5		25.5			71.5	
X1		26.5			67.2	
Y2		25.4			66.3	
Z5	24.5	24.9	96.8	68.0	67.2	99.1
KPPD-F	25.4	25.3	100.4	69.1	68.6	100.7

Note B is given in the appendix.

Table IX

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 60 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.6	6.7	113.8	59.9	60.0	96.5	10.0	10.4	96.2
C1		6.5			61.9			13.0	
C9		5.0			64.1			7.0	
E6	6.0	6.1	103.4	61.4	61.2	98.9	10.5	10.3	101.0
F7	6.1	6.1	105.2	63.6	62.6	102.4	5.9	7.3	56.7
G3	6.7	6.7	115.5	63.3	63.0	101.9	13.6	12.0	130.8
H4	4.8	4.9	82.8	63.1	62.9	101.6	16.0	14.4	153.8
J5		5.9			61.2			7.5	
N1	5.9	5.7	101.7	61.3	61.3	98.7	7.9	8.5	76.0
S2	6.6	6.6	113.8	63.3	63.0	101.9	12.8	11.9	123.1
T3	4.9	4.8	84.5	61.1	61.2	98.4	6.0	6.1	57.7
U7	5.1	5.0	87.9	63.7	63.7	102.6	5.0	5.4	48.1
V5		6.8			60.1			10.0	
X1		7.0			61.3			11.0	
Y2		5.0			61.3			16.2	
Z5	5.0	5.1	86.2	62.9	62.7	101.3	13.0	15.9	125.0
KPPD-F	5.8	5.8	100.0	62.3	62.1	100.3	10.3	10.4	99.0

Notes A and B are given in the appendix.

Table IX (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	6.2	6.2	91.2	9.7	9.7	105.4
C1		6.9			9.0	
E6	6.7	6.6	98.5	9.2	9.3	100.0
F7	7.2	7.0	105.9	8.8	9.0	95.7
H4	6.4	6.3	94.1	9.9	10.1	107.6
J5		7.9			7.8	
S2	6.9	7.0	101.5	9.2	9.1	100.0
T3	6.8	7.2	100.0	9.1	8.6	98.9
U7	7.2	7.0	105.9	8.9	9.2	96.7
Z5	6.7	6.6	98.5	9.5	9.5	103.3
KPPD-F	6.7	6.8	98.5	9.3	9.2	101.1

Note B is given in the appendix.

Table IX (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 60 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	149.0	153.2	95.1	318.5	317.8	98.2
C1		152.9			320.9	
C9		155.8			320.1	
E6	150.6	150.6	96.2	301.8	306.1	93.0
F7	151.6	161.0	96.8	309.2	327.8	95.3
G3	149.5	155.8	95.5	314.2	328.1	96.9
H4	161.0	156.5	102.8	324.5	324.4	100.0
J5		157.0			322.4	
N1	166.8	169.1	106.5	350.5	345.5	108.0
S2	143.1	144.4	91.4	320.1	322.5	98.7
T3	148.4	154.9	94.8	320.7	326.5	98.9
U7	152.6	157.7	97.4	315.9	313.6	97.4
V5		148.0			310.0	
X1		145.0			293.0	
Y2		159.6			339.2	
Z5	167.8	165.3	107.2	344.7	339.3	106.3
KPPD-F	154.0	156.6	98.3	322.0	324.4	99.3

Note B is given in the appendix.

Table IX (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Flat 60 #

Code	Adjusted CD Tensile lb/in			Adjusted Total Tensile lb/in		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
A9	26.0	26.0	102.8	72.0	71.4	105.0
C1		25.2			69.7	
C9		22.2			64.0	
E6	29.1	28.5	115.0	70.6	70.8	102.9
F7	25.3	26.2	100.0	68.6	69.1	100.0
G3	23.8	23.7	94.1	63.7	63.7	92.9
H4	25.6	24.8	101.2	67.6	71.8	98.5
J5		25.3			63.9	
N1	26.2	25.7	103.6	68.0	67.3	99.1
S2	24.2	24.0	95.7	74.0	73.6	107.9
T3	24.4	25.6	96.4	67.3	68.7	98.1
U7	23.6	24.0	93.3	65.9	66.3	96.1
V5		25.5			71.5	
X1		26.0			65.5	
Y2		25.4			66.3	
Z5	25.2	25.0	99.6	68.1	67.6	99.3
KPPD-F	25.3	25.3	100.0	68.6	68.6	100.0

Note B is given in the appendix.

Table X

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 50 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur	Cum	Ind	Cur	Cum	Ind	Cur	Cum	Ind
	Avg	Avg	*B	Avg	Avg	*B	Avg	Avg	*B
H4	4.1	4.1	89.1	53.4	52.6	102.7	15.5	15.1	122.0
N1	5.0	5.1	108.7	51.3	50.9	98.7	7.0	10.0	55.1
S2	6.4	6.2	139.1	53.7	52.5	103.3	16.2	15.6	127.6
V5	4.3	4.3	93.5	50.9	50.9	97.9	3.5	3.2	27.6
Z5	3.8	3.8	82.6	52.2	52.6	100.4	26.9	19.0	211.8
KPPD-E	4.4	4.6	95.7	52.3	52.0	100.6	14.4	12.7	113.4

Notes A and B are given in the appendix.

Table X (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	5.0	5.0	83.3	10.6	10.6	115.2
S2	5.5	5.5	91.7	9.8	9.8	106.5
V5	8.4	8.4	140.0	6.1	6.1	66.3
Z5	5.1	5.1	85.0	10.3	10.3	112.0
KPPD-E	6.0	6.0	100.0	9.2	9.2	100.0

Note B is given in the appendix.

Table X (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 50 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	114.5	122.1	88.9	256.0	270.0	90.3
N1	131.6	127.3	102.2	280.4	270.5	98.9
S2	109.0	121.7	84.6	264.0	284.2	93.1
V5	138.0	134.9	107.1	288.0	286.2	101.6
Z5	125.1	136.5	97.1	266.0	299.5	93.8
KPPD-E	124.5	128.8	96.7	270.6	283.5	95.4

Note B is given in the appendix.

Table X (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 50 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	6.2	6.4	92.5	5.9	6.1	111.3
N1	5.4	6.1	80.6	5.0	5.0	94.3
S2	6.3	6.2	94.0	5.0	5.3	94.3
V5	8.3	8.2	123.9	4.5	4.7	84.9
Z5	5.9	6.2	88.1	5.4	5.1	101.9
KPPD-E	6.5	6.7	97.0	5.2	5.3	98.1

Note B is given in the appendix.

Table X (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 50 #

Code	CD TEA			Total TEA		
	ft	lb/sq ft	Ind	ft	lb/sq ft	Ind
	Cur	Cum		Cur	Cum	
	Avg	Avg	*B	Avg	Avg	*B
H4	9.2	8.9	117.9	24.1	22.9	115.9
N1	7.7	8.7	98.7	18.9	20.7	90.9
S2	7.4	7.9	94.9	22.2	22.0	106.7
V5	6.2	6.6	79.5	18.8	19.6	90.4
Z5	8.3	7.4	106.4	20.0	19.1	96.2
KPPD-E	7.8	7.8	100.0	20.9	20.8	100.5

Note B is given in the appendix.

Table XI

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 50 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	4.1	4.1	87.2	53.4	52.7	102.5	16.0	15.2	125.0
N1		5.0			50.8			9.5	
S2	6.8	6.3	144.7	53.9	52.9	103.5	12.4	15.4	96.9
V5	4.4	4.4	93.6	50.8	50.8	97.5	3.0	3.2	23.4
Z5	4.4	3.9	93.6	51.7	52.4	99.2	15.4	19.1	120.3
KPPD-E	5.0	4.7	106.4	52.3	52.1	100.4	11.1	12.8	86.7

Notes A and B are given in the appendix.

Table XI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	5.0	5.0	82.0	10.7	10.6	118.9
S2	5.5	5.5	90.2	9.9	9.9	110.0
V5	8.2	8.3	134.4	6.2	6.2	68.9
Z5	5.4	5.3	88.5	9.7	9.9	107.8
KPPD-E	6.1	6.1	100.0	8.9	9.0	98.9

Note B is given in the appendix.

Table XI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 50 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	109.0	120.9	85.5	251.0	268.9	89.0
N1		128.1			273.3	
S2	116.1	120.3	91.1	282.0	281.8	100.0
V5	128.5	133.3	100.8	268.5	281.5	95.2
Z5	122.4	134.1	96.0	294.5	298.1	104.4
KPPD-E	120.4	127.5	94.4	277.3	282.1	98.3

Note B is given in the appendix.

Table XI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 50 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	6.9	6.4	103.0	6.4	6.2	120.8
N1		6.0			4.8	
S2	6.1	6.2	91.0	5.1	5.3	96.2
V5	8.5	8.2	126.9	4.5	4.7	84.9
Z5	6.2	6.2	92.5	5.2	5.2	98.1
KPPD-E	6.9	6.7	103.0	5.1	5.3	96.2

Note B is given in the appendix.

Table XI (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 50 #

Code	CD TEA			Total TEA		
	ft Cur Avg	lb/sq ft Cum Avg	Ind *B	ft Cur Avg	lb/sq ft Cum Avg	Ind *B
H4	9.4	9.0	120.5	26.3	23.4	125.2
N1		8.3			20.5	
S2	8.0	8.0	102.6	21.7	21.9	103.3
V5	6.6	6.7	84.6	20.1	19.9	95.7
Z5	6.8	7.4	87.2	19.7	19.3	93.8
KPPD-E	7.4	7.8	94.9	21.3	21.0	101.4

Note B is given in the appendix.

Table XII

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 50 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	4.1	4.1	87.2	51.9	52.8	99.6	18.0	15.8	139.5
N1		5.0			50.8			9.5	
S2	6.4	6.3	136.2	53.1	53.1	101.9	15.9	15.2	123.3
V5	4.9	4.6	104.3	50.6	50.7	97.1	3.0	3.2	23.3
Z5	4.1	4.0	87.2	52.7	52.4	101.2	15.6	18.9	120.9
KPPD-E	4.9	4.7	104.3	52.1	52.1	100.0	13.1	12.9	101.6

Notes A and B are given in the appendix.

Table XII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 50 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	5.0	5.0	82.0	10.4	10.5	115.6
S2	5.5	5.5	90.2	9.7	9.8	107.8
V5	8.3	8.3	136.1	6.1	6.1	67.8
Z5	5.5	5.3	90.2	9.7	9.8	107.8
KPPD-E	6.1	6.1	100.0	9.0	9.0	100.0

Note B is given in the appendix.

Table XII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 50 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	114.0	118.8	90.8	259.0	265.7	92.6
N1		128.1			273.3	
S2	114.0	116.8	90.8	285.7	280.5	102.2
V5	133.0	134.1	106.0	282.5	281.1	101.0
Z5	131.5	130.2	104.8	297.0	292.0	106.2
KPPD-E	123.1	125.5	98.1	281.0	279.6	100.5

Note B is given in the appendix.

Table XII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 50 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	7.2	6.6	107.5	6.4	6.0	123.1
N1		6.0			4.8	
S2	6.1	6.2	91.0	5.4	5.3	103.8
V5	8.0	8.2	119.4	4.6	4.6	88.5
Z5	6.1	6.2	91.0	5.6	5.2	107.7
KPPD-E	6.8	6.7	101.5	5.5	5.2	105.8

Note B is given in the appendix.

Table XII (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 50 #

Code	CD TEA			Total TEA		
	ft lb/sq ft			ft lb/sq ft		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	8.8	8.8	114.3	25.3	23.8	119.3
N1		8.3			20.5	
S2	7.4	8.0	96.1	21.9	22.2	103.3
V5	6.6	6.8	85.7	19.3	19.6	91.0
Z5	7.8	7.3	101.3	20.6	19.6	97.2
KPPD-E	7.6	7.7	98.7	21.7	21.2	102.4

Note B is given in the appendix.

Table XIII

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 60 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	4.0	4.1	85.1	63.4	63.5	101.9	15.5	14.6	129.2
N1		5.1			61.0			8.4	
S2	6.5	6.3	138.3	63.7	62.6	102.4		13.5	
V5	4.4	4.5	93.6	60.4	60.4	97.1	3.5	3.8	29.2
Z5	4.7	4.1	100.0	61.5	62.6	98.9	24.5	17.0	204.2
KPPD-E	4.7	4.7	100.0	62.1	62.2	99.8	12.5	12.0	104.2

Notes A and B are given in the appendix.

Table XIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	5.9	5.9	80.8	10.7	10.7	118.9
S2	6.5	6.5	89.0	9.8	9.8	108.9
V5	9.4	9.4	128.8	6.4	6.4	71.1
KPPD-E	7.3	7.3	100.0	9.0	9.0	100.0

Note B is given in the appendix.

Table XIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 60 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	134.5	148.6	86.0	300.5	330.4	86.8
N1		163.5			349.2	
S2	116.6	144.9	74.6	326.0	346.3	94.2
V5	160.5	156.1	102.6	332.5	336.4	96.0
Z5	166.0	175.2	106.1	366.8	372.9	106.0
KPPD-E	145.4	156.4	93.0	326.5	346.2	94.3

Note B is given in the appendix.

Table XIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994

Extensible

60 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	6.1	6.5	88.4	5.3	5.5	108.2
N1		6.8			4.4	
S2	6.2	6.2	89.9	4.5	4.9	91.8
V5	9.2	8.4	133.3	4.2	4.7	85.7
Z5	6.7	6.7	97.1	4.4	4.7	89.8
KPPD-E	7.2	6.9	104.3	4.7	4.9	95.9

Note B is given in the appendix.

Table XIII (cont.)

AVERAGES OF MILL QUALITY DATA FOR JAN-FEB 1994 Extensible 60 #

Code	CD TEA			Total TEA		
	ft	lb/sq ft	Ind	ft	lb/sq ft	Ind
	Cur	Cum		Cur	Cum	
	Avg	Avg	*B	Avg	Avg	*B
H4	9.7	9.8	112.8	26.6	26.6	109.0
N1		8.4			23.4	
S2	7.6	8.6	88.4	25.4	25.3	104.1
V5	7.4	7.5	86.0	23.9	23.2	98.0
Z5	7.7	8.4	89.5	22.0	22.5	90.2
KPPD-E	8.2	8.6	95.3	24.7	24.4	101.2

Note B is given in the appendix.

Table XIV

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 60 #

Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	4.3	4.1	89.6	64.4	63.6	103.4	15.0	14.6	123.0
N1		5.1			61.0			8.4	
S2	6.6	6.3	137.5	63.7	62.9	102.2	12.5	13.5	102.5
V5	4.4	4.6	91.7	60.3	60.3	96.8	3.5	3.9	28.7
Z5	4.5	4.2	93.8	61.5	62.3	98.7	12.1	17.0	99.2
KPPD-E	5.0	4.8	104.2	62.2	62.3	99.8	10.1	12.2	82.8

Notes A and B are given in the appendix.

Table XIV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	6.1	6.0	83.6	10.6	10.6	119.1
S2	6.5	6.5	89.0	9.8	9.8	110.1
V5	9.9	9.7	135.6	6.1	6.2	68.5
Z5	6.4	6.4	87.7	9.7	9.7	109.0
KPPD-E	7.4	7.3	101.4	8.8	8.9	98.9

Note B is given in the appendix.

Table XIV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 60 #

Code	Adjusted MD Tear g/sheet			Adjusted Total Tear g/sheet		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	140.0	148.6	90.6	321.0	331.2	93.2
N1		163.5			349.2	
S2	141.5	143.6	91.5	350.9	344.8	101.8
V5	144.5	151.9	93.5	310.5	326.4	90.1
Z5	154.6	172.5	100.0	371.1	373.6	107.7
KPPD-E	145.9	154.6	94.4	340.9	344.6	98.9

Note B is given in the appendix.

Table XIV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 60 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	7.1	6.6	102.9	5.9	5.5	120.4
N1		6.8			4.4	
S2	6.1	6.2	88.4	4.9	4.9	100.0
V5	7.9	8.4	114.5	4.3	4.5	87.8
Z5	6.3	6.6	91.3	4.9	4.8	100.0
KPPD-E	6.8	6.9	98.6	4.8	4.9	98.0

Note B is given in the appendix.

Table XIV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAR-APR 1994 Extensible 60 #

Code	CD TEA			Total TEA		
	ft lb/sq ft	ft lb/sq ft	Ind	ft lb/sq ft	ft lb/sq ft	Ind
	Cur	Cum	*B	Cur	Cum	*B
	Avg	Avg		Avg	Avg	
H4	10.3	9.9	119.8	30.0	27.0	122.0
N1		8.4			23.4	
S2	9.0	8.6	104.7	25.8	25.4	104.9
V5	7.3	7.5	84.9	23.0	23.3	93.5
Z5	7.8	8.3	90.7	23.0	22.7	93.5
KPPD-E	8.3	8.6	96.5	24.8	24.6	100.8

Note B is given in the appendix.

Table XV

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994						Extensible	60 #		
Code	Moist @ reel Percent			Adjusted Basis Weight *A Lbs/M Sq Ft			Porosity s/100 cc		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	3.9	4.1	81.3	63.0	63.6	101.1	16.0	15.1	130.1
N1		5.1			61.0			8.4	
S2	6.7	6.4	139.6	63.4	63.1	101.8	16.9	13.5	137.4
V5	4.7	4.6	97.9	60.2	60.3	96.6	3.0	3.9	24.4
Z5	3.9	4.2	81.3	62.9	62.2	101.0	15.8	16.9	128.5
KPPD-E	4.8	4.8	100.0	62.7	62.3	100.6	14.3	12.3	116.3

Notes A and B are given in the appendix.

Table XV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 60 #

Code	Thickness mils			Apparent Density lbs/pt		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	5.9	6.0	83.1	10.7	10.7	116.3
S2	6.4	6.5	90.1	9.9	9.9	107.6
V5	9.5	9.7	133.8	6.3	6.3	68.5
Z5	6.3	6.3	88.7	10.1	9.9	109.8
KPPD-E	6.7	7.1	94.4	9.7	9.2	105.4

Note B is given in the appendix.

Table XV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 60 #

Code	Adjusted MD Tear			Adjusted Total Tear		
	g/sheet		Ind	g/sheet		Ind
	Cur	Cum		Cur	Cum	
	Avg	Avg	*B	Avg	Avg	*B
H4	139.5	145.0	92.1	318.5	326.1	93.5
N1		163.5			349.2	
S2	136.7	139.6	90.3	345.0	343.9	101.3
V5	151.0	150.2	99.7	304.0	320.6	89.3
Z5	168.9	168.3	111.6	373.2	367.9	109.6
KPPD-E	148.7	151.4	98.2	339.6	340.5	99.7

Note B is given in the appendix.

Table XV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 60 #

Code	MD Stretch Percent			CD Stretch Percent		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	7.4	6.7	107.2	6.0	5.6	122.4
N1		6.8			4.4	
S2	6.0	6.2	87.0	5.0	5.0	102.0
V5	8.1	8.3	117.4	4.2	4.4	85.7
Z5	6.1	6.5	88.4	4.9	4.7	100.0
KPPD-E	6.7	6.9	97.1	5.1	4.9	104.1

Note B is given in the appendix.

Table XV (cont.)

AVERAGES OF MILL QUALITY DATA FOR MAY-JUN 1994 Extensible 60 #

Code	CD TEA ft lb/sq ft			Total TEA ft lb/sq ft		
	Cur Avg	Cum Avg	Ind *B	Cur Avg	Cum Avg	Ind *B
H4	10.2	9.9	118.6	30.0	27.8	120.5
N1		8.4			23.4	
S2	8.1	8.6	94.2	25.7	25.8	103.2
V5	8.6	7.6	100.0	23.7	23.3	95.2
Z5	8.0	8.1	93.0	23.4	22.9	94.0
KPPD-E	8.7	8.6	101.2	26.0	24.9	104.4

Note B is given in the appendix.

Table XVI
Data on Conditioning and Testing Environments

Mill Code	Preconditioned	Conditioning Temp. (Deg. C)	Before RH (%)	Testing Time (min.)
A9	No	22	50	10
C1	No	21	50	20
C9	No	22	50	15
E6	Yes			
F7	No	22	50	6
G3	No			
H4	No	22	50	30
I6	No	22	50	6
J5	No	21	50	20
N1	No	22	50	1440
S2	No	21	50	20
T3	No	22	50	15
U7	No	22	50	15
V5	No	22	50	10
X1	No	22	50	10
Y2	No	22	50	10
Z5	No	22	50	10

Table XVII
Data on Tear and Tensile Testing Variables

Flat Grades Only

Mill Code	Tear Old	Tester New	Tensile Method		Tensile Test Variables		
			T404	T494	Length (in.)	Width (in.)	Speed (in./min.)
A9	x			x	7.1	1	1.0
C1		x		x	7.1	1	1.0
C9		x		x	8.0	1	2.0
E6		x		x	7.1	1	1.0
F7		x			6.0	1	2.0
G3		x	x		7.1	1	25.8
H4	x			x	5.2	1	2.0
I6		x			6.0	1	2.0
J5		x		x	7.1	1	1.0
N1		x		x	4.8	1	1.0
S2		x		x	7.1	1	1.0
T3		x		x	7.0	1	4.0
U7		x		x	8.0	1	2.0
V5							
X1	x			x	7.1	1	1.0
Y2		x		x	7.1	1	2.0
Z5		x		x	7.1	1	2.0

Table XVII (cont.)

Extensible Grades Only

Mill Code	Tear Tester		Tensile Method		Tensile Test Variables		
	Old	New	T404	T494	Length (in.)	Width (in.)	Speed (in./min.)
H4	x			x	5.3	1	2.0
N1		x		x	4.8	1	1.0
S2		x		x	5.0	1	5.0
V5	x			x	4.8	1	1.0
Z5		x		x	7.1	1	2.0

APPENDIX

NOTES A AND B USED IN TABULATIONS OF MILL DATA

Notes A, used in the tables of mill data, defines the procedure for calculating adjusted basis weight. The adjusted basis weight is that corresponding to a moisture content of 7.25%, calculated as follows:

$$ABW = RBW [(100 - RMC) / (100 - 7.25)]$$

where: ABW = adjusted basis weight, RBW = reported basis weight, and RMC = reported moisture content.

Note B, used in the tables of mill data, defines the procedures for calculating either machine index or KPPD index. These indexes are the ratio of either the machine or KPPD current average to the KPPD cumulative average, calculated as follows:

$$MI = 100 (CMA/CUM KPPDA)$$

$$KPPDI = 100 (CKPPDA/CUM KPPDA)$$

where: MI = Machine Index, KPPDI = KPPD index.

CMA = current machine average for a specific physical property of a specific multiwall bag paper grade obtained during the current period on a specific machine,

CKPPDA = current average of all machine averages for a specific physical property of a specific multiwall bag paper grade obtained during the current period,

CUM KPPDA = the average CKPPD for the previous twelve months, including the current month.

and: CUM MA = the average CMA for the previous twelve months, including the current month.

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